CDX-5180FP/5181FP

SERVICE MANUAL

AEP Model

Photo : CDX-5181FP

CDX-5180FP/5181FP mechanical and electrical specifications are the same as the front panel section of CDX-5180RDS/5181RDS FM/MW/LW Compact Disc Players.
Please refer to CDX-5180RDS/5181RDS service manual (9-956-913-11) for the details.

FM/MW/LW COMPACT DISC PLAYER
FRONT DETACHABLE PANEL UNIT

SONY®

MICROFILM

English
92D0547-1
Printed in Japan

© 1992. 4

Sony Corporation
Mobile Electronics Group

9-957-180-11

Published by Customer Relations and Service Group

CDX-5180RDS/5181RDS

SERVICE MANUAL

AEP Model

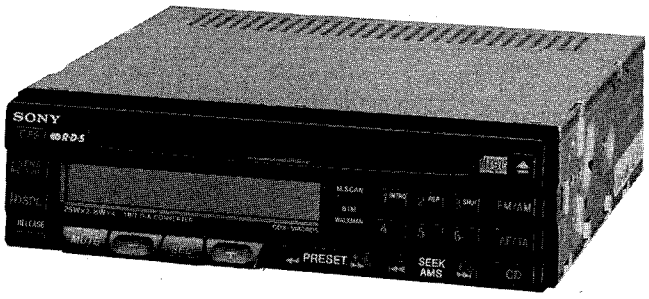


Photo: CDX-5180RDS

Model Name Using Similar Mechanism	CDX-U8000
CD Drive Mechanism Type	MG-200W-33

SPECIFICATIONS

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	25 W × 2 (at 4 ohms)* 8 W × 4 (at 4 ohms)* * Measured at 14.4 V

CD player section

System	Compact disc digital audio system
Frequency response	10 – 20,000 Hz ±3 dB
Signal to noise ratio	90 dB
Wow and flutter	Below measurable limit

General

Input	WALKMAN jack
Power requirements	12 V DC car battery (negative ground)
Current drain	800 mA (CD playback) 2 A (during disc loading or eject)
Operating temperature	– 10°C to 50°C
Dimensions	Approx. 178 × 50 × 152 mm (w/h/d)
Weight	Approx. 1.6 kg
Tone controls	Bass ±10 dB (100 Hz) Treble ±10 dB (10 kHz)
Supplied accessories	Front panel case (1) Connecting coard (1 set) Mounting hardware (1 set)
Optional accessories	Mounting kit Cleaning cloth XP-CD1

— Continued on next page —

FM/AM COMPACT DISC PLAYER

CDX-5180RDS

FM/MW/LW COMPACT DISC PLAYER

MICROFILM

SONY®

Tuner section

	FM	AM (MW*)	LW*
Tuning range	87.5 – 108.0 MHz	531 – 1,602 kHz	153 – 281 kHz
Antenna terminal	FM/AM external antenna connector		
Intermediate frequency	10.7 MHz	450 kHz	
Usable sensitivity	12 dBf (1.1 μV/75 ohms)	35 μV	48 μV
Selectivity	75 dB at ±400 kHz	–	–
Signal to noise ratio	70 dB (monaural) 65 dB (stereo)	55 dB	–
Harmonic distortion at 1 kHz	0.3% (monaural) 0.5% (stereo)	0.3%	–
Stereo separation	35 dB	–	–
Frequency response	30 Hz – 15, 000 Hz ±3 dB	–	–

* CDX-5181RDS

Design and specifications subject to change without notice.

TABLE OF CONTENTS

Section *Title* *Page*

Specifications 1

1. GENERAL

Installation 3
Features 4
Connections 5
Location of Controls 7
Detaching and Attaching the Front Panel 8
Adjusting the sound 8
Playing a Disc 9
Enjoying the Variety of CD Playing Modes 10
Memorizing the Stations Automatically 10
Memorizing Only Desired Stations Manually 11
Receiving Stations Stored in the Memory 12
Tuning in Automatically 12
Tuning in Manually 13
Overview of the RDS Function 14
Station Name Display 15
Automatic Re-tuning 15
Receiving Traffic Announcement 16
Listening to a WALKMAN 18
Setting the Clock 18

2. DISASSEMBLY 19

3. MECHANICAL ADJUSTMENTS 20

4. ELECTRICAL ADJUSTMENTS 20

5. DIAGRAMS

5-1. Master Microcomputer IC504 24
5-2. Tuner Microcomputer IC670 30
5-3. Master Microcomputer IC601 31
5-4. Tuner Microcomputer IC6603 34
5-5. Key Display Microcomputer IC802 35
5-6. Block Diagram 37
5-7. Printed Wiring Boards (MD Section) 40
5-8. Schematic Diagram (MD Section) 43
5-9. Printed Wiring Boards (Main Section) 47
5-10. Schematic Diagram (Main Section) 51
5-11. Printed Wiring Boards and Schematic Diagram (Display Section) 55
5-12. Waveforms 59

6. EXPLODED VIEWS 63

7. ELECTRICAL PARTS LIST 68

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

This section is extracted from instruction manual.

SECTION 1
GENERAL

Installation

Precautions

- Choose the mounting location carefully so that the unit will not interfere with the normal driving functions of the driver.
- Avoid installing the unit where it would be subject to high temperatures, such as from direct sunlight or hot air from the heater, or where it would be subject to dust, dirt or excessive vibration.
- Be sure to detach the front panel before you start installing the unit.
- Use only the supplied mounting hardware for a safe and secure installation.
- Press the reset button on the front side of the unit hidden by the front panel after completing the connections.

Mounting angle adjustment
Adjust the mounting angle to less than 20°.

Installation

Précautions

- Choisir soigneusement l'emplacement de sorte que l'appareil ne gêne pas la conduite.
- Éviter d'installer l'appareil dans un endroit exposé à de hautes températures, telles que celles du rayonnement solaire direct ou de l'air chaud du chauffage, à la saleté, à la poussière excessive ou à de violentes vibrations.
- Ne pas oublier de détacher le panneau avant, avant de mettre en place l'appareil.
- Pour une installation sûre, n'utiliser que le matériel de montage fourni.
- Appuyer sur la touche de réinitialisation du panneau avant de l'appareil après avoir effectué les connexions.

Ajustement de l'angle de montage
Ajuster l'angle de montage à moins de 20°.

Installation

Zur besonderen Beachtung

- Wählen Sie den Einbauort so aus, daß der Fahrer nicht behindert wird.
- Bauen Sie das Gerät nicht an Plätzen ein, wo es prallem Sonnenlicht, Wärme von der Heizung usw., Staub, Schmutz oder starken Vibrationen ausgesetzt ist.
- Nehmen Sie vor dem Installieren der Einheit die Frontplatte ab.
- Verwenden Sie für sicheren Einbau stets nur die mitgelieferten Montageteile
- Drücken Sie die Rückstelltaste an der Gerätevorderseite (hinter der Frontabdeckung), nachdem die Anschlüsse hergestellt sind.

Zur Einstellung des Montagewinkels
Achten Sie darauf, daß der Montagewinkel kleiner als 20° ist.

Montage

Voorzorgsmaatregelen

- Kies de plaats van opstelling zorgvuldig, zodat het apparaat u bij het rijden niet in de weg zit.
- Installeer het apparaat niet op plaatsen waar het blootgesteld wordt aan hoge temperaturen zoals van direkt zonlicht of de warme luchtstroom van de autoverwarming, aan sterke trillingen, of waar het in kontakt komt met veel stof of vuil.
- Vergeet niet om, voordat u met de installatie begint, eerst het voorpaneel van het apparaat te verwijderen.
- Gebruik voor het veilig en stevig monteren van het apparaat uitsluitend de bijgeleverde montage-onderdelen.
- Druk, nadat alle aansluitingen zijn gemaakt, op de terugsteltoets op de voorkant van het apparaat dat achter het voorpaneel verborgen zit.

Instellen van de inbouwhoek
Monteer het apparaat in een stand die niet meer dan 20° afwijkt van het horizontale vlak.

Mounting Example

Installation in the dashboard

Exemple de montage

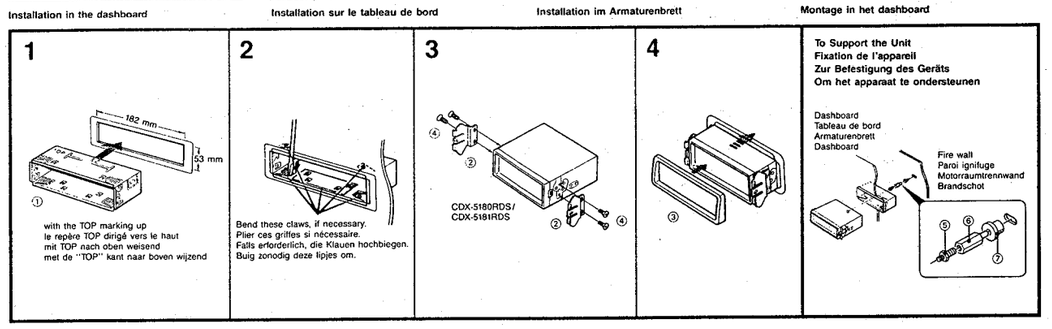
Installation sur le tableau de bord

Montagebeispiel

Installation im Armaturenbrett

Montagevoorbeeld

Montage in het dashboard



To Install the WALKMAN Jack

The WALKMAN jack can be installed on the dashboard etc. With the supplied double-sided tape.

Notes
- Do not install the WALKMAN jack on the driver side dashboard.
- Place the WALKMAN cord where it would not interfere with normal driving functions of the car.

Installation d'une prise de WALKMAN

Une prise WALKMAN peut être fixée sur le tableau de bord, par exemple, à l'aide de ruban à double face adhésive.

Remarque
- Ne pas installer la prise WALKMAN sur le côté conducteur du tableau de bord.
- Le cordon WALKMAN ne doit pas gêner la conduite.

Einbau der WALKMAN-Buchse

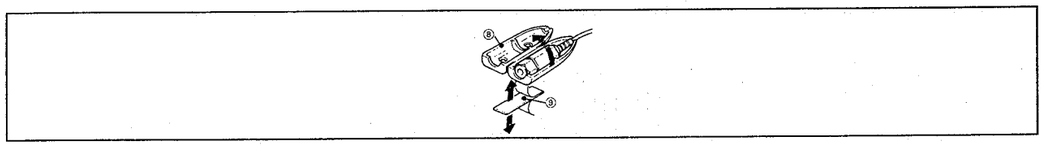
Die WALKMAN-Buchse kann mit den mitgelieferten Schrauben oder dem doppelseitigen Klebeband in das Armaturenbrett eingebaut werden.

Hinweise
- Bauen Sie die WALKMAN-Buchse nicht an der Fahrerseite des Armaturenbretts ein.
- Installieren Sie das WALKMAN-Kabel so, daß es den Fahrer nicht behindert.

Aanbrengen van de WALKMAN aansluitstekkerbus

De WALKMAN aansluitstekkerbus kan met het bijgeleverde tweezijdig kleefband op het dashboard enz. worden gemonteerd.

Opmerkingen
- Installeer de WALKMAN aansluitstekkerbus niet aan de bestuurderszijde van het dashboard.
- Leid het WALKMAN snoer zo dat het de bestuurder niet kan hinderen tijdens het rijden.



How to Detach and Attach the Front Panel

To detach
Press the RELEASE button to open up the front panel, then pull it out.

To attach
Align the part A and B, and push the front panel until it is fixed.

Dépose et fixation du panneau avant

Dépose
Appuyer sur la touche RELEASE pour ouvrir le panneau, puis le tirer.

Fixation
Aligner les parties A et B, puis pousser le panneau avant de sorte qu'il soit bien en place.

Abnehmen und Anbringen der Frontplatte

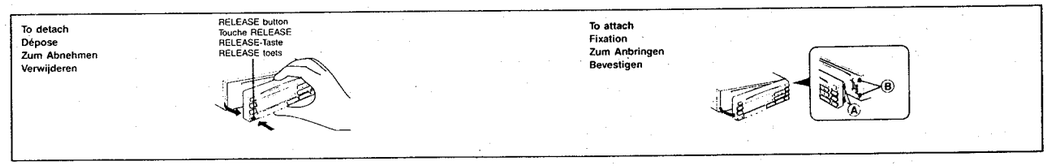
Zum Abnehmen
Drücken Sie die RELEASE-Taste zum Öffnen der Frontplatte, und nehmen Sie sie ab.

Zum Anbringen
Setzen Sie Teil A auf Teil B, und drücken Sie die Frontplatte dann fest.

Losmaken en bevestigen van het voorpaneel

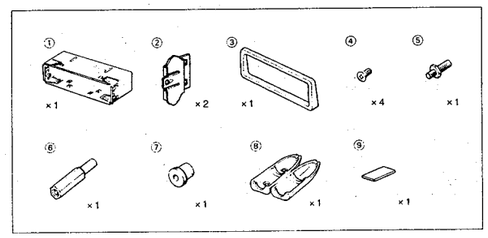
Losmaken
Druk op de RELEASE toets om het voorpaneel te openen, en trek dit er dan uit.

Bevestigen
Plaats delen A en B tegenover elkaar, en druk het voorpaneel in tot dit vastzit.



Supplied Mounting Hardware
Matériel de montage fourni
Mitgelieferte Montageteile
Bijgeleverde montage-onderdelen

The numbers in the list are keyed to those in the instructions.
Les numéros de la liste correspondent à ceux dans les illustrations.
Die Nummern in den Abbildungen beziehen sich auf den Erläuterungstext.
De nummers in de onderdelenlijst komen overeen met die in de gebruiksaanwijzing.



Features

DIN-sized mobile CD player and FM/AM (FM/MW/LW)** tuner with a power amplifier
** CDX-5181RDS

CD section
- 1 bit DAC (Digital-to-Analog Converter) for a clear sound reproduction.
- Quick-recovery mechanism against sound skipping.
  When strong vibration causes sound skipping, the player quickly relocate the point where the CD play was interrupted.
- An 8 cm CD can be played without an adaptor.

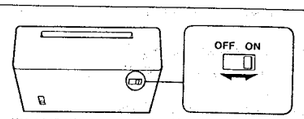
Tuner section
- Up to 24 statios can be preset: 18 on FM and 6 on AM (CDX-5180RDS).
- Up to 30 stations can be preset: 18 on FM and 6 each on MW and LW (CDX-5181RDS).
- Easy and quick tuning with preset number buttons while driving
- RDS information can be received.

Others
- Fader control for adjusting the volume of the front and rear speakers in a 4-speaker system
- WALKMAN jack for easily connecting a WALKMAN, etc.
- Line outputs for connecting an optional power amplifier.
- Two colour variation (amber or green) for illumination.
- Detachable front panel enables you to take the front panel away with you leave your car.
- Quartz-controlled digital clock
- Built-in 4-channel power amplifier

Connections

Caution

- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the **red** power input lead only after all other leads are connected. And be sure to connect it to the positive 12 V power terminal which is energized when the ignition key is set to the accessory position.
- **Run all ground wires to a common ground point.**

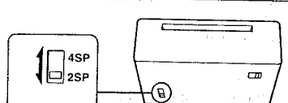


Use a ball-point pen or a similar object to select the position of the switch.
Déplacer le sélecteur à l'aide d'un stylo ou d'un objet similaire.
Zur Umstellung des Schalters verwenden Sie einen Kugelschreiber o. ä.
Wijzig de stand van de schakelaar met een balpen of iets dergelijks.

Power Select Switch

When the unit is used in a car with no accessory position on the ignition key

The illumination on the front panel is factory-set to be turned on even when the unit is not being played. However, this setting may cause some car battery wear if the unit is used in a car with no accessory position on the ignition key.
To avoid this battery wear when using the unit in such a car, **set the POWER SELECT switch located on the bottom of the unit to the OFF position, then press the reset button.** The illumination is reset to stay off while the unit is not being played.



Use a ball-point pen or a similar object to select the position of the switch.
Déplacer le sélecteur à l'aide d'un stylo ou d'un objet similaire.
Zur Umstellung des Schalters verwenden Sie einen Kugelschreiber o.ä.
Wijzig de stand van de schakelaar met een balpen of iets dergelijks.

Speaker Select Switch

The outputs of the built-in amplifier can be set by the speaker select switch located on the bottom of the unit. After connecting the speakers, be sure to set the switch to the appropriate position.

Switch position	Speaker connection
2 SP	2-speaker connection
4 SP	4-speaker connection

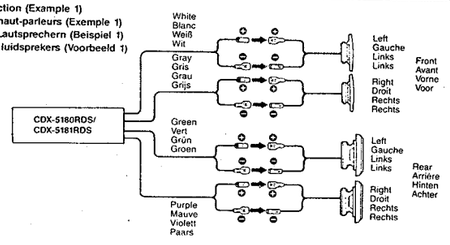
Note on a power antenna
A power antenna without relay control box cannot be used with this unit.

Memory hold connection
When the yellow power input lead is connected, power will be always supplied to the memory circuit, even when the ignition key is switched off.

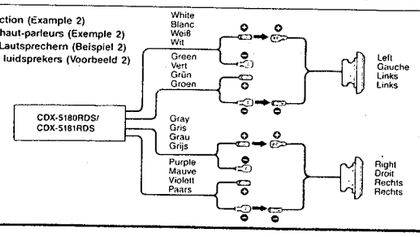
Notes on speaker connection
- Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged..
- Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.
- Do not attempt to connect the speakers in parallel.

Speaker Connection
Schéma des connexions
Lautsprecheranschluß
Luidsprekeraansluitingen

4-speaker connection (Example 1)
Connexion de 4 haut-parleurs (Exemple 1)
Anschluß von 4 Lautsprechern (Beispiel 1)
Aansluiten van 4 luidsprekers (Voorbeeld 1)



2-speaker connection (Example 2)
Connexion de 2 haut-parleurs (Exemple 2)
Anschluß von 2 Lautsprechern (Beispiel 2)
Aansluiten van 2 luidsprekers (Voorbeeld 2)



Connexions

Attention

- Cet appareil est conçu pour ne fonctionner que sur courant continu de 12 V avec masse négative.
- Avant d'effectuer les raccordements, débrancher la borne de masse de la batterie de la voiture pour éviter tout court-circuit.
- Brancher le fil d'alimentation **rouge** après la connexion de tous les autres cordons. Veiller aussi à le raccorder à la borne d'alimentation positive de 12 V qui est énergétisée quand la clé est sur la position accessoire.
- **Acheminer tous les cordons à une masse commune.**

Sélecteur d'alimentation

Lorsque la clé de contact de la voiture ne possède pas de position accessoire

L'éclairage du panneau avant est préréglé en usine pour qu'il s'allume même lorsque l'appareil est hors tension. Toutefois, ce réglage peut user les batteries de la voiture, si la clé de contact ne possède pas de position accessoire.
Pour remédier à cet inconvénient, **placer le sélecteur qui se trouve sous l'appareil sur la position OFF.** L'éclairage ne fonctionne pas lorsque l'appareil est hors tension.

Sélecteur de haut-parleurs

Les sorties de l'amplificateur incorporé peuvent être réglées à l'aide du sélecteur situé sous l'appareil. Après avoir branché les haut-parleurs, vérifier que l'appareil est sur la position correcte.

Position du sélecteur	Connexion des haut-parleurs
2 SP	Connexion de 2 haut-parleurs
4 SP	Connexion de 4 haut-parleurs

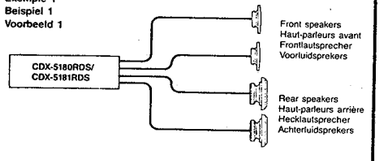
Remarque sur l'antenne électrique
Il est impossible d'utiliser une antenne sans boîtier de contrôle à relais avec cet appareil.

Connexion de maintien de la mémoire
Quand le fil d'entrée d'alimentation jaune est raccordé, l'alimentation est toujours fournie au circuit de la mémoire, même quand la clé de contact est sur la position d'arrêt.

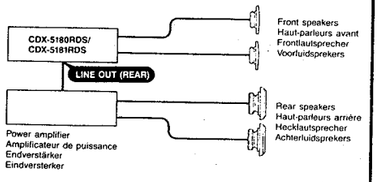
Remarques sur la connexion des haut-parleurs
- Utiliser des haut-parleurs d'une impédance de 4 à 8 ohms et d'une capacité de puissance admissible, sinon ils risquent d'être endommagés.
- Ne pas relier les bornes de haut-parleurs au châssis de la voiture et ne pas raccorder la borne du haut-parleur droit à celle du haut-parleur gauche.
- Ne pas raccorder les haut-parleurs en parallèle.

Connection Diagram
Schéma des connexions
Anschlußdiagramm
Aansluitschema

Example 1
Exemple 1
Beispiel 1
Voorbeeld 1



Example 2
Exemple 2
Beispiel 2
Voorbeeld 2



Remarque sur l'antenne électrique
Il est impossible d'utiliser une antenne sans boîtier de contrôle à relais avec cet appareil.

Connexion de maintien de la mémoire
Quand le fil d'entrée d'alimentation jaune est raccordé, l'alimentation est toujours fournie au circuit de la mémoire, même quand la clé de contact est sur la position d'arrêt.

Remarques sur la connexion des haut-parleurs
- Utiliser des haut-parleurs d'une impédance de 4 à 8 ohms et d'une capacité de puissance admissible, sinon ils risquent d'être endommagés.
- Ne pas relier les bornes de haut-parleurs au châssis de la voiture et ne pas raccorder la borne du haut-parleur droit à celle du haut-parleur gauche.
- Ne pas raccorder les haut-parleurs en parallèle.

Anschluß

Vorsicht

- Das Gerät ist ausschließlich für eine 12-V-Autobatterie mit negativer Erdung bestimmt.
- Trennen Sie vor dem Anschluß des Geräts die Erdungsklemme der Autobatterie ab, um einem Kurzschluß vorzubeugen.
- Schließen Sie die **rote** Stromversorgungsleitung als letztes, wenn bereits alle anderen Kabel angeschlossen sind, an. Achten Sie darauf, die Stromversorgungsleitung an einen + 12-V-Kontakt des Bordnetzes anzuschließen, der in der Zubehörposition des Zündschlosses unter Strom steht.
- **Leiten Sie alle Erdungskabel an einen gemeinsamen Massepunkt.**

Einstellung des POWER SELECT-Schalters

Wenn das Gerät in einem Fahrzeug verwendet wird, dessen Zündschloß keine Zubehör-Position besitzt, beachten Sie folgendes:

Das Gerät ist werksseitig so voreingestellt, daß das Bedienungspult auch dann beleuchtet ist, wenn das Gerät nicht betrieben wird. Besitzt das Zündschloß Ihres Fahrzeugs keine Zubehörposition, so ist diese Beleuchtung ständig eingeschaltet und entzieht der Batterie Strom.
Stellen Sie in einem solchen Fall den POWER SELECT-Schalter an der Unterseite des Gerätes auf OFF, und drücken Sie dann die Rücksetztaste. Bei ausgeschaltetem Gerät ist das Bedienungspult nicht mehr beleuchtet.

Einstellung des SPEAKER SELECT-Schalters

Am SPEAKER SELECT-Schalter kann der Verstärker auf 2-Lautsprecher- oder 4-Lautsprecher-Betrieb eingestellt werden. Stellen Sie den Schalter nach Anschluß der Lautsprecher in die richtige Position.

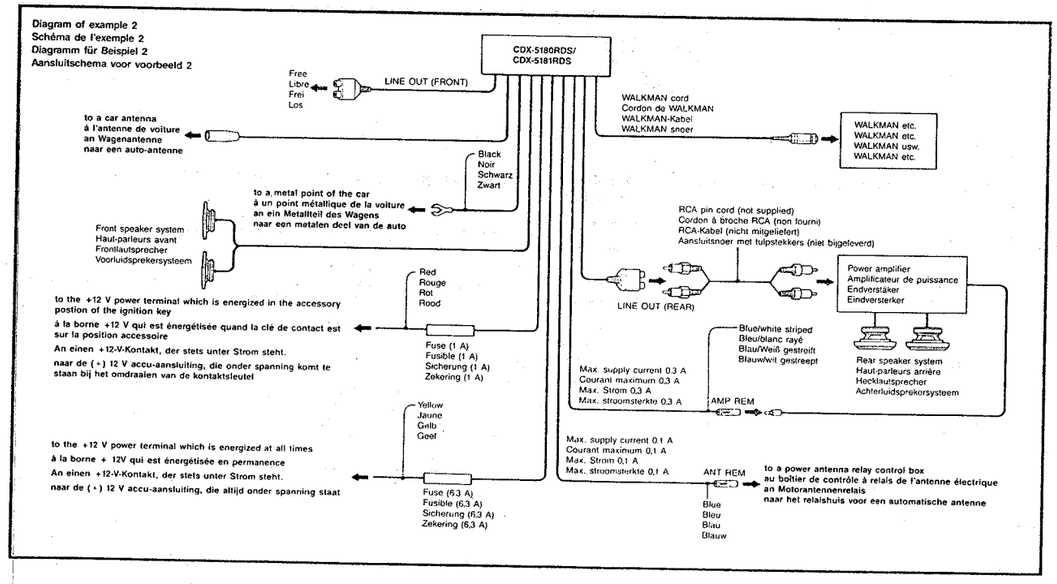
Schalterposition	Anzahl der angeschlossenen Lautsprecher
2SP	Anschluß von 2 Lautsprechern
4SP	Anschluß von 4 Lautsprechern

Hinweis zu Motorantennen
An das Gerät kann nur eine mit Relais ausgestattete Motorantenne angeschlossen werden.

Speicherpufferung
Wenn die gelbe Stromversorgungsleitung angeschlossen wird, werden die Speicherkreise auch bei ausgeschaltetem Zündschloß mit Strom versorgt.

Hinweise zum Lautsprecheranschluß
- Verwenden Sie nur Lautsprecher mit einer Impedanz von 4 bis 8 Ohm. Achten Sie darauf, daß die Lautsprecher ausreichend belastbar sind, damit sie nicht beschädigt werden.
- Verbinden Sie die Lautsprecherkabel nicht mit dem Wagenchassis und schalten Sie die rechten und linken Lautsprecheranschlüsse nicht parallel.
- Schließen Sie keine Lautsprecher parallel an.

Diagram of example 2
Schéma de l'exemple 2
Diagramm für Beispiel 2
Aansluitschema voor voorbeeld 2



Aansluitingen

Voorzorgsmaatregelen

- Dit apparaat is zo ontworpen dat het alleen op 12 V gelijkstroom, van een negatief geaarde auto-accu, kan worden gebruikt.
- Alvorens te beginnen met het maken van aansluitingen, dient de aardklem van de auto-accu te worden losgemaakt. Dit om kortsluiting te voorkomen.
- Sluit de **rode** stroomdraad pas aan nadat alle andere aansluitingen zijn gemaakt. Zorg ervoor dat deze stroomdraad op de positieve 12 V accu-aansluiting wordt aangesloten. De draad komt dan onder spanning te staan, wanneer de contaktsleutel wordt omgedraaid.
- **Sluit alle aarddraden op een gemeenschappelijk aardpunt aan.**

Stroomkeuzeschakelaar (POWER SELECT)

Bij gebruik van het apparaat in een auto zonder "accessory" stand van het kontaktslot

De verlichting van het voorpaneel is in de fabriek zo ingesteld, dat de verlichting brandt ook al geeft het apparaat geen muziek weer. Deze instelling kan echter tot gevolg hebben dat onnodig stroom van de accu wordt getrokken, wanneer het apparaat in een auto zonder "accessorry" stand wordt gebruikt.
Om deze situatie te voorkomen, **dient u de POWER SELECT keuzeschakelaar aan de onderkant van het apparaat in de "OFF" stand te zetten, en vervolgens op de terugsteltoets te drukken.** U kunt dan de verlichting uitschakelen wanneer geen muziek met het apparaat wordt weergegeven.

Luidspreker-keuzeschakelaar (SPEAKER SELECT)

U kunt instellen op de uitgangssignalen van de ingebouwde eindversterker met de luidspreker-keuzeschakelaar, aan de onderkant van het apparaat. Zorg, nadat u de luidsprekers heeft aangesloten, dat u de keuzeschakelaar in de juiste stand zet.

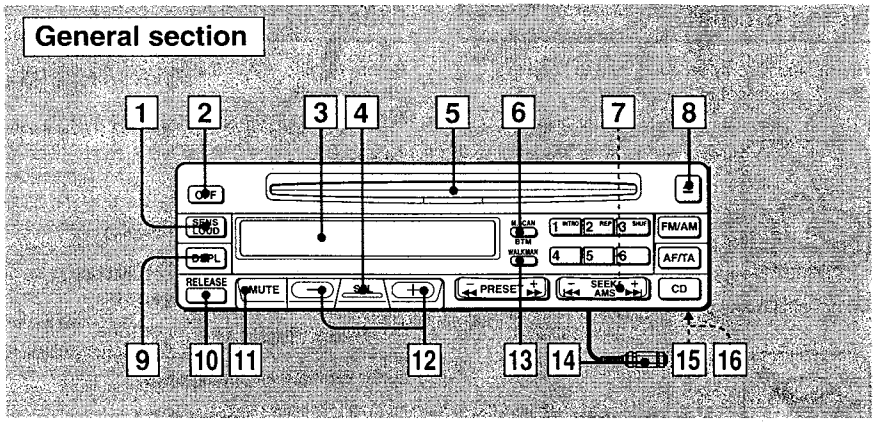
Stand van de schakelaar	Luidsprekers-aansluiting
2SP	Voor het aansluiten van 2 luidsprekers
4SP	Voor het aansluiten van 4 luidsprekers

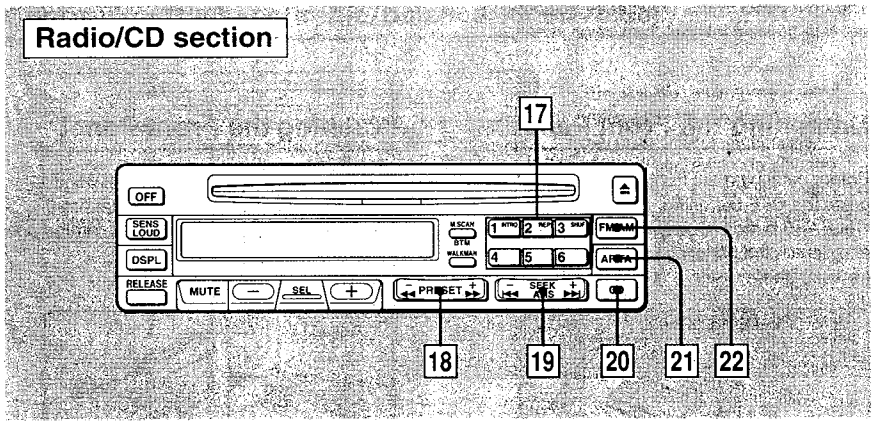
Opmerking betreffende automatische antennes
Met dit apparaat is het niet mogelijk een automatische antenne zonder relaishuis te gebruiken.

Instandhouden van het geheugen
Door het aansluiten van de gele voedingsdraad, wordt het geheugencircuit altijd van stroom voorzien, ook al wordt het kontaktsleuteltje verwijderd.

Opmerkingen betreffende het aansluiten van de luidsprekers
- Gebruik luidsprekers met een impedantie van 4 tot 8 Ohm en let op dat die het vermogen van de versterker kunnen verwerken. Als dit wordt verzuimd, kunnen de luidsprekers ernstig beschadigd raken.
- Verbind in geen geval de aansluitingen van de luidsprekers met het chassis van de auto en sluit de aansluitingen van de rechter en linker luidspreker niet op elkaar aan.
- Probeer de luidsprekers niet parallel aan te sluiten.

Location of Controls – Refer to the pages indicated in ●





1 **SENS/LOUD (sensitivity/loudness) button ⓲**
Press for more than two seconds to reinforce the bass and treble especially when listening at a low volume level. To disengage the button, press it again for more than two seconds.

2 **OFF (power off) button ⓫**

3 **Display window**

4 **SEL (bass/treble/balance/fader/volume select) button ❾**

5 **Disc insertion slot**

6 **M.SCAN/BTM (memory scan/best tuning memory) button ⓭**

7 **Reset button (located on the front side of the unit hidden by the front panel) ❹**

8 **⏏ (eject) button**

9 **DSPL (display change/time set) button ⓫⓯㉖㉙**

10 **RELEASE (front panel release) button ❽**

11 **MUTE button**
Press to mute the sound momentarily. Press again to restore the previous volume level.

12 **–/+ button ❾**

13 **WALKMAN button ㉘**
Press this button when you listen to equipment (WALKMAN etc.) connected to the WALKMAN jack of the unit.

14 **WALKMAN jack ㉘**

15 **POWER SELECT switch (located on the bottom of the unit)**
See "POWER SELECT switch" in the Installation/connection manual.

16 **SPEAKER SELECT switch (located on the bottom of the unit)**
See "SPEAKER SELECT switch" in the Installation/connection manual.

17

Number	During disc play	During radio reception
1	INTRO button ⓬	Preset number buttons ⓯⓰
2	REP (repeat) ⓬ button	
3	SHUF (shuffle) button ⓬	
4	–	
5	–	
6	–	

	During disc play	During radio reception
18	◀◀/▶▶ (manual search) button ⓫	PRESET –/+ (preset search/manual tuning) button ⓰⓳
19	AMS* ⏮/⏭ button ⓫	SEEK –/+ (automatic tuning) button ⓱

20 **CD (disc play) button ⓾⓫**

21 **AF/TA (alternative frequency/traffic information) button ㉓㉕㉖**

22 **FM/AM (tuner on/band select) button ⓭**

* Automatic Music Sensor

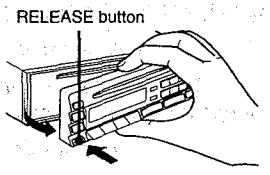
Changing the illumination color
Press the 1 INTRO button while pressing the SEL button.

Detaching and Attaching the Front Panel

The front panel of this unit can be detached in order to prevent the unit from being stolen.

Detaching the Front Panel

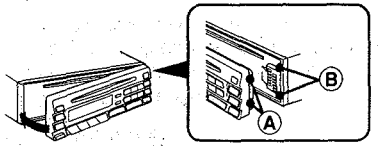
Before detaching the front panel, be sure to press the OFF button first. Then press the RELEASE button to open up the front panel and detach the panel by pulling it towards you as illustrated.



Be sure not to drop the panel when detaching it from the unit.

Attaching the Front Panel

Apply the right hand side of the front panel to the unit by attaching the part Ⓐ of the front panel to the part Ⓑ of the unit as illustrated and push until it clicks.

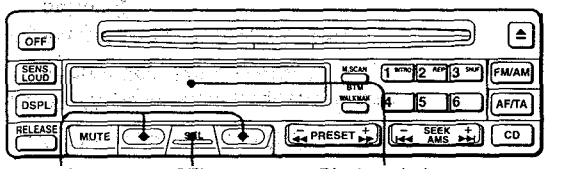


Notes

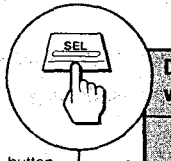
- Make sure that the front panel is the right way up when attaching it to the unit as it cannot be attached upside-down.
- Do not press the front panel hard against the unit when attaching it to the unit. It can be easily attached by pressing it lightly against the unit.
- When you carry the front panel with you, put it in the supplied front panel case.
- Do not press hard or give excessive pressure to the display window of the front panel.

Adjusting the Sound

Controlling the bass/treble/balance/fader/volume



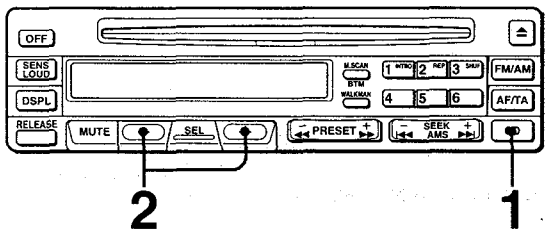
The –/+ buttons normally function as the volume control. Adjust the level within three seconds after selecting the desired control mode with the SEL button. Otherwise, the mode will go back to the volume control mode.



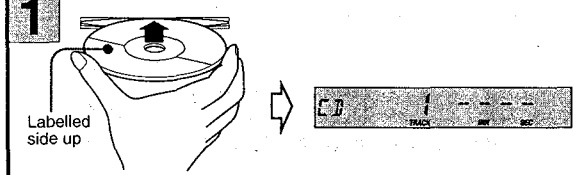
Each time the SEL button is pressed, the display indication will change as follows.

Display window	Control mode	(–) button	(+) button
BAS	Bass	For less bass	For more bass
TRE	Treble	For less treble	For more treble
BAL	Balance	To decrease the right-speakers' volume	To decrease the left-speakers' volume
FAD	Fader	To decrease the rear-speakers' volume	To decrease the front-speakers' volume
VOL	Volume	For less volume	For more volume

Playing a Disc

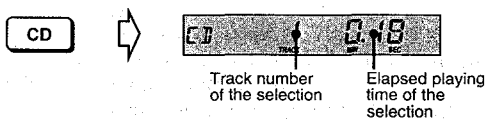


1



When the disc is loaded into the unit, it will start playing the disc from the beginning.

When a disc is already inserted.



2 **Adjust the volume.**

Notes
- Do not insert a disc with the labelled side down. Doing so may damage the unit.
- Do not try to insert another disc when one has been already inserted. Doing so may damage the unit.

At the end of the disc
The track number returns to "1" and CD play will be repeated from the beginning of the disc.

Important
Since the CD system offers a wide dynamic range, the peaks of the high level inputs are recorded with high fidelity and the noise level is very low. Do not turn up the volume while listening to a section with no audio signals or very low level inputs. If you do, the speakers may be damaged when a peak level is played.

To stop disc play	Press the OFF button. To restart playing from the same point, press the CD button.
To remove the disc	Press ⏏. Even if you set the ignition key to the off position, you can remove the disc by pressing ⏏.

Locating a Particular Track

Locating tracks in sequence (Automatic Music Sensor)

You can locate the beginning of a desired track during CD play.

To locate the beginning of the track being played	Press ⏮ once.
To locate the beginning of the next track	Press ⏭ once.

Press repeatedly to the locate previous or succeeding tracks.

Locating a Particular Point of a Track

Locating particular points in sequence (Manual Search)

You can locate a particular point of track during CD play by monitoring the speeded up sound.

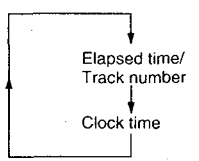
To go back at high speed	Keep ◀◀ pressed.
To go ahead at high speed	Keep ▶▶ pressed.

If you press the FM/AM button during the disc play
The disc play will stop automatically and the radio sound will be heard.

Note on an 8 cm disc
You can play an 8 cm disc without an adaptor.

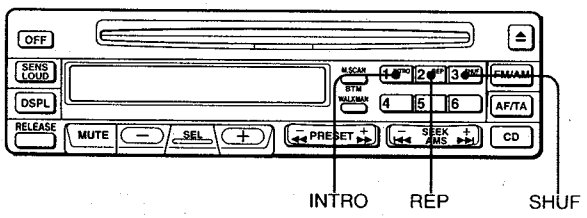
Note on a 12 cm disc
If you leave the disc in the insertion slot after pressing the ⏏ button, the disc will be automatically retracted into the unit in fifteen seconds to protect the disc.
If you press the CD button within fifteen seconds, the disc will be retract and the disc play starts from the beginning of the disc.

To display the elapsed time or the clock time during disc play
Press the DSPL button.
Each press on the button changes the mode cyclically as follows:



If you keep pressing the ▶▶ button
The time counter displays "- - - -" when you have passed the end of the disc. To return to a normal display, press ⏮ or ◀◀ button.

Enjoying the Variety of CD Playing Modes



Playing the Beginnings of Tracks – Intro Scan

1 INTRO

You can play the first ten seconds of each track in order.
If you find the desired track, press the button to cancel the mode. The CD play will continue.

If you press the INTRO button during the shuffle play, the first ten seconds of all tracks will be played in random order.

Playing Repeatedly – Repeat Play

2 REP

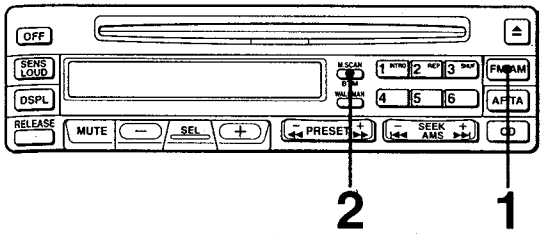
You can repeat the same track.
To cancel:
Press the button again.

Playing in Random Order – Shuffle Play

3 SHUF

You can play the tracks in random order.
To cancel:
Press the button again.

Memorizing the Stations Automatically (Best Tuning Memory Function)



Up to 24 (30)* stations can be memrized on the preset number buttons 1 to 6.
CDX-5180RDS:
up to 6 stations on each band (FM1, FM2, FM3 and AM).
CDX-5181RDS*:
up to 6 stations on each band (FM1, FM2, FM3, MW and LW).

1 **Press to select the desired band**.**
The tuner turns on at the same time.

FM/AM

2 **Press for more than two seconds.**

M.SCAN
BTM

The receivable frequency ranges of the FM bands (FM1, FM2 and FM3) are the same.
Therefore, a total of 18 FM stations can be memrorized on the preset number buttons.

** The band canges in the following order:

FM1
↓
FM2
↓
FM3
↓
AM (MW → LW)

Checking All the Memorized Stations in Order – Memory Scan

M.SCAN
BTM
Press lightly.

The tuner will receive in order, all the stations stored in the memory for five seconds each.

To cancel
Press the M.SCAN button lightly once more. The memory scan will be cancelled and you will be able to listen to the station currently being received.

Note
There may be cases where even the stations which are stored in the memory cannot be received due to weak signals in the vicinity of your car.

Memorizing the stations Automatically

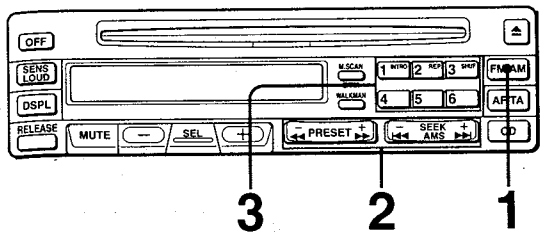
The BTM function – how this function operates

This function starts by searching stations from the lowest frequency of the currently tuned in band. When a station is located, it will be stored in the memory on the preset number button whose number is indicated on the display window. If there is no preset number indicated, it will be stored in the memory on the preset number button 1 onward. It continues to store the stations in the memory until all the preset number buttons ar e occupied.
For example, if the FM1 band was selected, it will continue until the preset number button 6 on the FM3 band is occupied.
When all the preset number buttons are occupied with the memories before the highest receivable frequency is searched, the unit will start searching for higher frequencies from where it was left off. This is to check if there are any more stations with better receptions than the ones already stored in the memory.
If a station with better reception is found, the unit will store it in the memory in place of a station with an inferior reception.
Lastly, it rearranges all the stations in the order of frequency from the lowest and stores them in the memory. The whole operation is now completed; the stations with better receptions are stored in the memory on the preset number buttons in the order of frequency.

Notes

- There may be a situation where there are not enough receivable stations due to lack of stations in the vicinity or weak broadcasting signals. In such a case the BTM operation may stop without all the buttons being stored with memories.
- If you start the BTM operation from the FM1 band, it will continue to store stations in memory to the FM2 and FM3 bands. Care must be taken if you wish to keep the stored stations on the FM2 and FM3 bands.
- If you start the BTM operation from the FM3 band, it will stop when all the memories on the FM3 band are occupied. It will not continue to the FM1 band.

Memorizing Only Desired Stations Manually



This method is useful when you know the frequency of desired stations which you want to memorize.

1 **Press to select the desired band.**
The tuner turns on at the same time.

FM/AM

2 **Press to tune in a desired station (page 17 or 19).**

SEEK AMS or PRESET

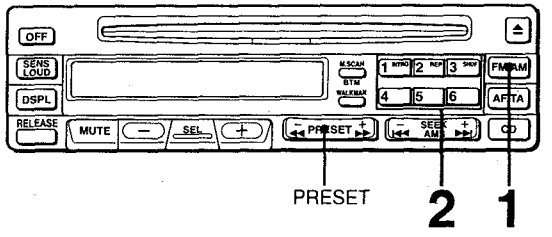
3 **Press for more than two seconds.**
Example: To memorize on the preset number button 1

1 INTRO

The number of the pressed preset number button will be displayed and the station will be memorized.

Important
Each preset number button has only one memory per band. The previously memorized station will be erased when you enter a new station of the same band on the same preset number button.

Receiving Stations Stored in the Memory



1 **Press to select the desired band.**
The tuner turns on at the same time.

FM/AM

2 **Press the desired preset number button lightly.**

1 INTRO — 6

Receiving the Preset Stations in Order
– Preset Search

PRESET

The number will advance in the following order:

1 → 2 → . . → 5 → 6 → 1 → 2 → . . .

(number of the preset number button)

PRESET

The number will reverse in the following order:

6 → 5 → . . → 2 → 1 → 6 → 5 → . . .

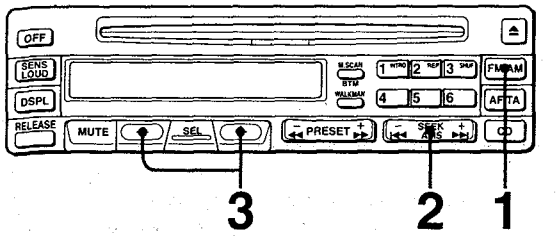
(number of the preset number button)

Notes
- There may be cases where even the stations which are stored in the memory cannot be received due to weak signals in the vicinity of your car.
- If you keep pressing the preset number button for more than two seconds, the currently received station will be memorized again. To receive the previously memorized station, make sure that the preset number button is pressed lightly.

To display the time indication during radio reception
Press the DSPL button.
To restore the frequency indication, press it again.

Note
If you keep pressing the PRESET button for more than two seconds, it also functions as manual tuning button.
If you wish to use this button as preset search button, be sure to press it lightly.

Tuning in Automatically



Use this method when you do not know the frequency of desired stations.

1 **Press to select the desired band.**
The tuner turns on at the same time.

FM/AM

2 **Press to start scanning.**

SEEK AMS

For lower frequencies

SEEK AMS

For higher frequencies

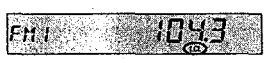
The scanning automatically stops when a station is tuned in. Repeat this step until a desired station is tuned in.

3 **Press to adjust the volume.**

Tuning in Automatically

When there are too many stations and the scanning stops too frequently during automatic tuning

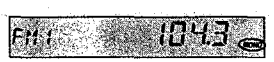
Press [SENS LOUD] so that the LCL (local) indication appears on the display window.



Only the stations with comparatively strong signals can be tuned in.

When the FM stereo program is too weak and noisy

Press [SENS LOUD] so that the MONO (monaural) indication appears on the display window.



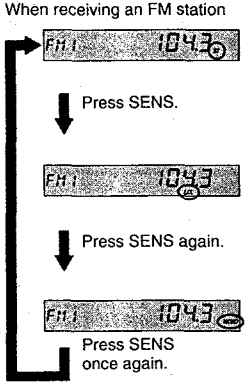
The noise will be reduced. The sound will be monaural instead.

When an FM stereo program of sufficient signal strength is tuned in

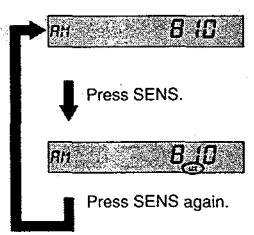
The ST (stereo) indication appears and the program will be automatically received in stereo.

The SENS button functions as follows

When receiving an FM station



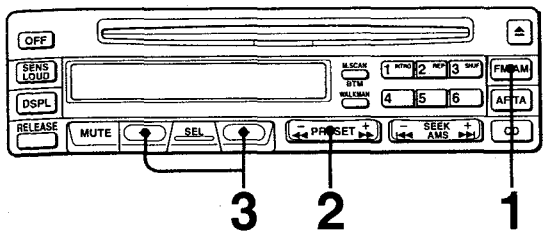
When receiving an AM station



Note

If you keep pressing the SENS button for more than two seconds, it also functions as the LOUD button.

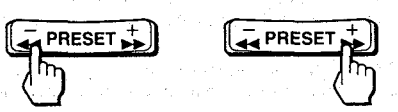
Tuning in Manually



1 **Press to select the desired band.**
The tuner turns on at the same time.

FM/AM

2 **Press for more than two seconds.**



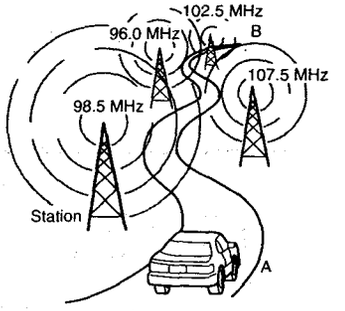
For lower frequencies — For higher frequencies

3 **Press to adjust the volume.**

For your safety while driving

Keep your eyes on the road and use the automatic tuning or the memory preset tuning!

Overview of the RDS Function



What is the RDS?

The RDS (Radio Data System) is a radio digital information system developed and introduced in 1987 by the EBU (European Broadcasting Union). Using the 57 kHz sub-carrier of FM broadcasting, the RDS enables you to receive a variety of information such as station names and traffic announcement. It also offers some useful functions such as automatic re-tuning of the best available signal carrying the chosen program.

The RDS digital data includes the followings:

PI	Program Identification
PS	Program Service Name
AF	List of Alternative Frequencies
TP	Traffic Program
TA	Traffic Announcement
PTY	Program Type

The following functions are available with this unit using the RDS data. Refer to the marked pages for details.

Station Service Name Display (page 22)

This function displays the name of the station which is currently tuned in on the dispaly window.

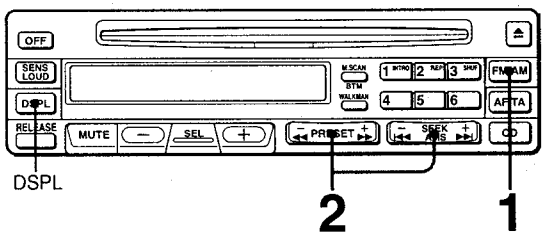
Automatic Re-tuning – AF Function (page 23)

This function automatically re-tunes in a station with a relatively stronger signal within the same broadcasting network using the PI and AF data.
The illustration above shows an example of a car passing though an area with four stations of the same broadcasting network between points A and B.
As the car moves on, the reception frequency of the station in the network changes from 98.5 MHz to 107.5 MHz then to 96.0 MHz and to 102.5 MHz.
By using the AF function, the driver will be able to keep listening to a program in the same broadcasting network without tuning in the station manually every time he enters a different frequency zone between A and B.

Traffic Announcement Reception
– TA Function (page 25)

This function searches and stands by for a traffic announcement station using the TP and TA data.
Using this function, the unit automatically searches the station and changes its mode to receive the traffic announcement when the broadcasting strarts while you are listening to a WALKMAN or CD play.

Station Name Display



1 **Press to select FM1, FM2, or FM3.**

FM/AM

2 **Tune in a desired station. (page 17 or 19)**

SEEK AMS or PRESET

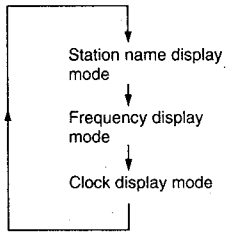
If the unit is set in the station name display mode and a station transmitting the RDS data is received, the name of that station will be display on the display window.

When the "- - - - - - - -" indication appears on the display window in the station name display mode
The received station is not a RDS station.

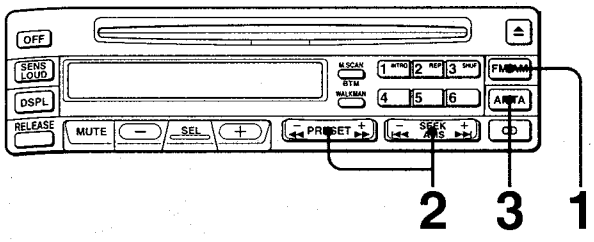
When the unit is in the frequency display mode and a RDS station is received
The "✳" display will come on to indicate that a RDS station is received. To find out the name of the station, press the DSPL button to change the display mode.

Notes
- RDS data can be received only on the FM band and not on the AM (MW and LW) band.
- The RDS functions of this unit will not be activated if the FM station being received is not transmitting the RDS data. It may also not work properly in an area where the RDS transmissions are in the experimental stage.

You can change the display mode by pressing the DSPL button
Each time you press the button, the display mode changes as follows:



Automatic Re-tuning – AF Function



1 **Press to select the FM1, FM2 or FM3.**

FM/AM

2 **Tune in a desired RDS station. (page 17 or 19)**

SEEK AMS or PRESET

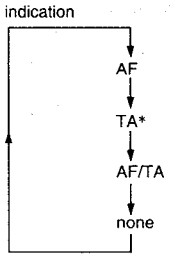
3 **Press the AF/TA button to get the "AF" indication.**

AF/TA

If the signal level of the tuned in RDS station falls below a certain point, the unit will begin to search for an alternative station with a stronger signal in the same network from the AF data (List of Alternative Frequencies). If a stronger signal station is found, the unit re-tunes in the station.

Notes
- When the "AF" indication is on the display window, only the RDS stations can be tuned in by the Automatic Tuning.
- If the tuned in RDS station is not transmitting the AF data, this function will not work.
- If you press the AF/TA button while the AM (MW or LW) band is tuned in, the FM1 band will be automatically selected.

The AF/TA button
Each pressing on the button changes the function cyclically as follows:



*See page 25 for the TA function.

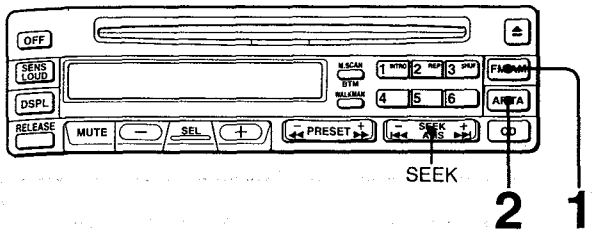
Network Station Memory

When the unit stores the RDS station transmitting the AF data on the preset number button, it stores not only its frequency but also its PI and the AF data. The AF data carries the information of the list of the frequencies of the stations within the same broadcasting network. The unit will store the data in its memory whether the AF function is activated or not.

Getting the Stored RDS Stations in Tune from the Broadcasting Networks

Be sure to press the preset number buttons after pressing the AF/TA button to activate the AF function. The AF function will select a better signal station by re-tuning within the network stations. If you press the preset number buttons without activating the AF function, you will not be able to use this function. In this case, you will only get the individual stations which were tuned in on the previous occasion. The unit will not re-tune to the other stations in the network even if they are stored in the memory.

Receiving Traffic Announcement – TA Function



Receiving a Traffic Announcement Station

1 **Press to select the FM1, FM2 or FM3.**

FM/AM

2 **Press to get the "TA" indication.**

AF/TA

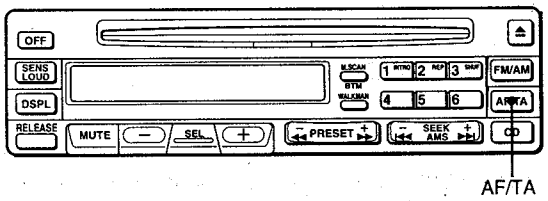
The search for a traffic information station will start. When a RDS station transmitting the TP data is found, the search stops and the "TP" indication will come on to the display window.

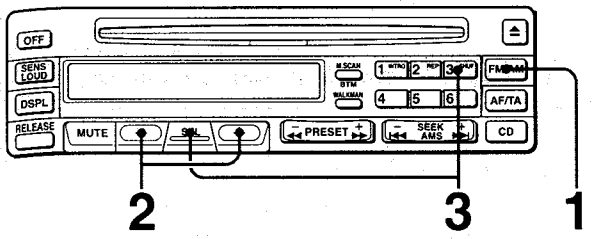
The "TA" indication will flash while the traffic announcement broadcasting is on the air. It will stop flashing when the broadcasting is over.

To search for another RDS station transmitting traffic announcement
Press the SEEK button while the "TA" indication is still on the display window.

Notes
- Do not activate the TA function in an area where there is no traffic announcement broadcasting service available. If you do so, the unit will keep searching for it and other stations cannot be tuned in.
- If you activate the TA function while the AM (MW or LW) band is tuned in, the FM1 band will be automatically selected and start searching for a traffic announcement station.

"TP" indication
This indicates that the currently tuned in RDS station offers a traffic announcement service.





Standing by for Traffic Announcement while Listening to a Tape or CD

Press to get the "TA" indication during CD play.

AF/TA

The playback continues while the unit searches for a traffic announcement station.

When a station is found:
The "TP" indication will come on the display window.

↓

When a traffic announcement broadcasting starts:
The "TA" indication will start flashing. The tape or CD play stops and the traffic announcement will be heard.

↓

When the broadcasting is over:
The tape playback or CD play resumes from where it was left off.

To cancel the stand-by mode
Press the AF/TA button to turn off the "TA" indication.

Changing the display to that of the frequency or station name during tape playback or CD play
Press the DSPL button few times. While the frequency or station name is being displayed, the SEEK, PRESET buttons and preset number buttons will function in the same way as they do during a radio reception.

Traffic Announcement is Heard at the Preset Volume Level

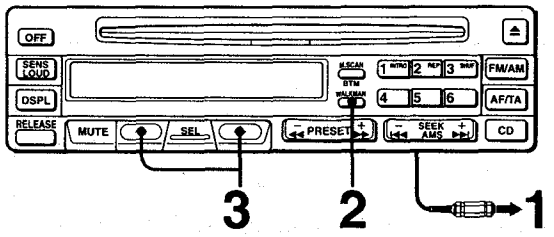
When traffic information broadcasting starts, you can hear it at the preset volume level even if the volume control on the front panel has been turned down. (If you are listening to other sources with higher volume level, the level will not change.) The preset volume level can be set in the following manner:

1 **Press the FM/AM button to select FM1, FM2 or FM3.**
2 **Adjust the volume to the desired level with the – or + button.**
3 **Press the preset number button 3 while pressing the SEL button.**
A beep sound will be heard when the setting is completed.

PTY (alarm) Data Reception

In case of an emergency, or in a situation where there may be danger from a natural disaster in the area, the RDS stations will transmit the PTY data information to warn drivers that they are in danger. The data includes the character display and the interruption signal for automatically tuning on the radio. **This data can be received while the AF or TA function is being activated.**
If the unit receives the PTY data from a RDS station during the tape playback or the CD play, the "AF" indication on the display window will start flashing and the tape playback or the CD play will stop. The radio will be automatically tunred on to receive the emergency announcement from the station.

Listening to a WALKMAN



You can connect a WALKMAN or other equipment with a headphones jack to the WALKMAN jack of the unit.

1 **Connect a WALKMAN etc. to the WALKMAN jack with the connecting cord (not supplied).**

2 **Press the WALKMAN button.**

WALKMAN ⇨ AUX WALKMAN

3 **Play back a tape on the WALKMAN and adjust the volume.**

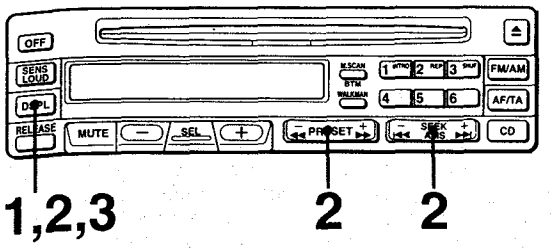
You can adjust the volume with the WALKMAN as well.

When you wish to stop using the WALKMAN, be sure to turn off the WALKMAN itself as well.

Warning
Be sure to keep the connecting cord away from the vicinity of the driver so that it will not hinder the normal driving condition of the driver.

Notes
- Do not expose the WALKMAN etc. to direct sunlight or a heat source such as hot air-ducts, or leave it in a car parked in direct sunlight where there can be a considerable rise in the temperature.
- Press the WALKMAN button on the unit only after the connecting cord is connected.
- Keep the volume of the WALKMAN moderate so that the sound will not be distorted and make sure that the EX DBB button on the WALKMAN is set to the OFF position.
- Operate the equipment connected to the WALKMAN jack with its own batteries. Do not try to operate it with your car battery as this could generate some interference noise.

Setting the Clock



Turn the ignition key to the ON position before setting the clock.

Example: To set to 10:08

1 **Press the DSPL button if the clock indication does not come on.**

DSPL ⇨ 0:00

2 **Press the DSPL button for more than two seconds.**

DSPL ⇨ 0:00

The clock indication appears and the digits begin to flash.

While holding down the DSPL button

Press SEEK AMS to set the hour digits.

(to go back) (to go forward)

10:00

Press PRESET to set the minute digits.

(to go back) (to go forward)

10:08

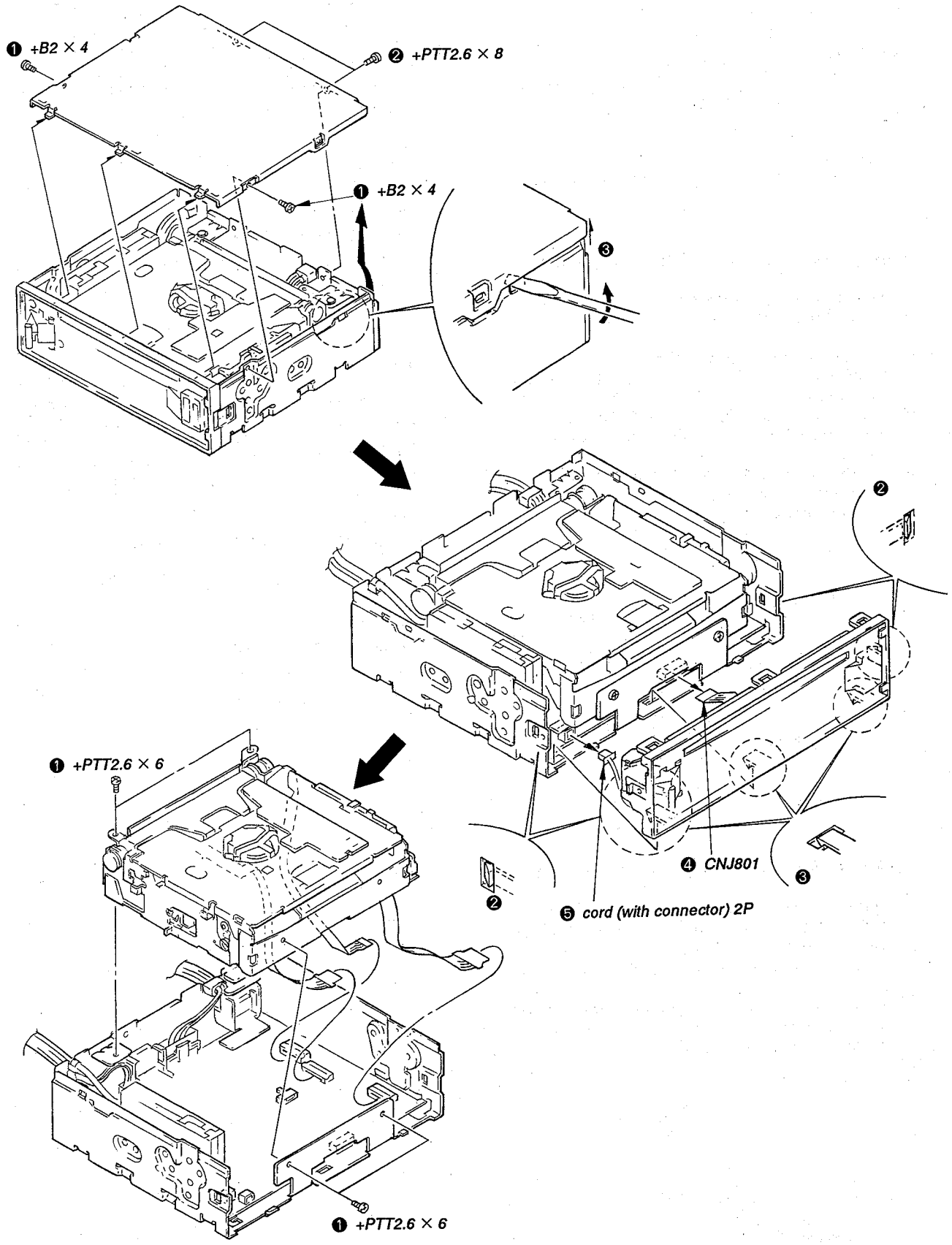
3 **The clock starts activating when you take your finger off the DSPL button.**

10:08

Note
If the POWER SELECT switch of this unit is set to the OFF position, the clock cannot be set unless the power is turned on. Set the clock after you turn on the radio or start CD play.

SECTION 2
DISASSEMBLY

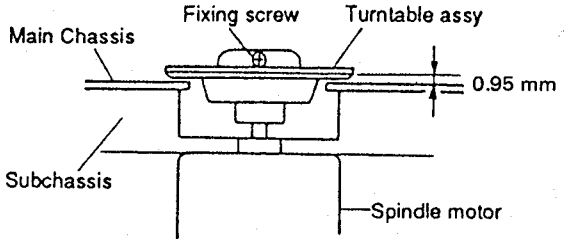
Note: Follow the disassembly procedure in the numerical order given.



SECTION 3
MECHANICAL ADJUSTMENTS

Turntable Height Adjustment

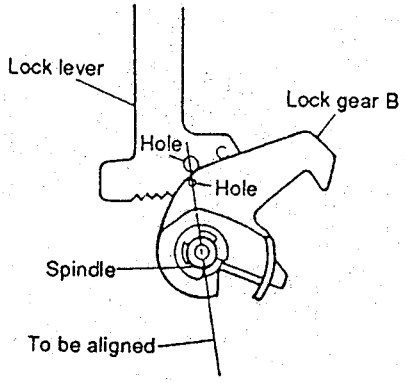
Loosen the fixing screws and adjust the height to the specification illustrated.



Lock Gears (A and B) Installing Adjustment

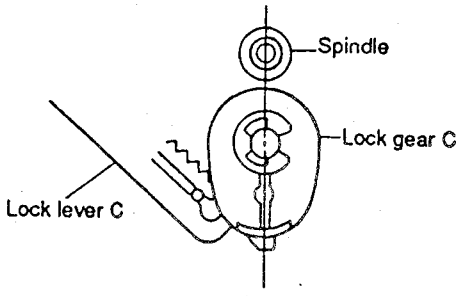
Since installing lock gears A and B is the same, only lock gear B is described below.

1. Rotate the gear near the motor with your fingers to move the optical section toward the external circumference.
2. Continue to rotate the gear until the lock gear is disconnected from the notch of the chassis and stops.
3. Fix the lock gear so that the holes of the lock lever and the lock gear and the spindle are roughly aligned.



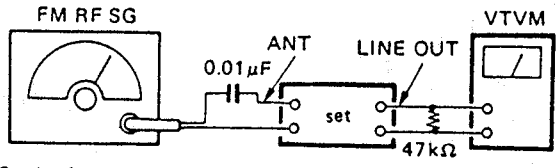
Lock Gear C installing Position Adjustment

1. Rotate the gear near the motor and move the optical section toward the external circumference.
2. Continue to rotate the gear until the lock gear is disconnected from the notch of the chassis and stops.
3. Fix lock gear C so that the spindle, the lock gear C fixing axis and the center of the lock gear C projection are roughly aligned.



SECTION 4
ELECTRICAL ADJUSTMENTS

FM S Meter Adjustment

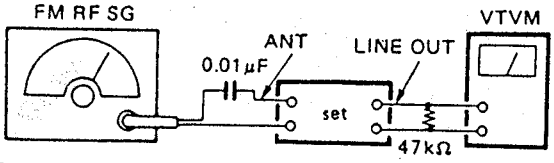


Carrier frequency: 98MHz
Output level: 1mV (More than 35dB)
Mode: FM
Modulation: Pilot signal 19kHz, 7.5kHz deviation (10%)

Procedure:

1. Tune the set to 98MHz.
2. Adjust RV603 so that reading on VTVM is 2.0 ± 0.1V.

FM Carrier Leak Adjustment

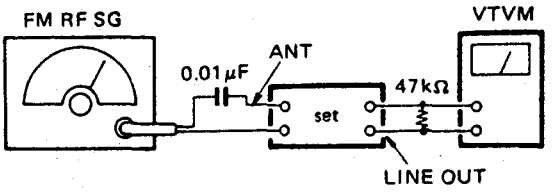


Carrier frequency: 98MHz
Output level: 1mV (More than 35dB)
Mode: FM
Modulation: Pilot signal 19kHz, 7.5kHz deviation (10%)

Procedure:

1. Tune the set to 98MHz.
2. Adjust RV601 so that reading on VTVM is minimum level.

FM stereo separation adjustment



Carrier frequency: 98MHz
Output level: 1mV (More than 35dB)
Mode: FM
Modulation: Main channel: 1kHz, 33.75kHz deviation (45%)
Pilot signal: 19kHz, 7.5kHz deviation (10%)
Subchannel: 1kHz, 33.75kHz deviation (45%)

Procedure:

FM Stereo SSG Output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	(A)
R-CH	L-CH	Adjust RV602 so that the VTVM reading is minimum. (B)
R-CH	R-CH	(C)
L-CH	R-CH	Adjust RV602 so that the VTVM reading is minimum. (D)

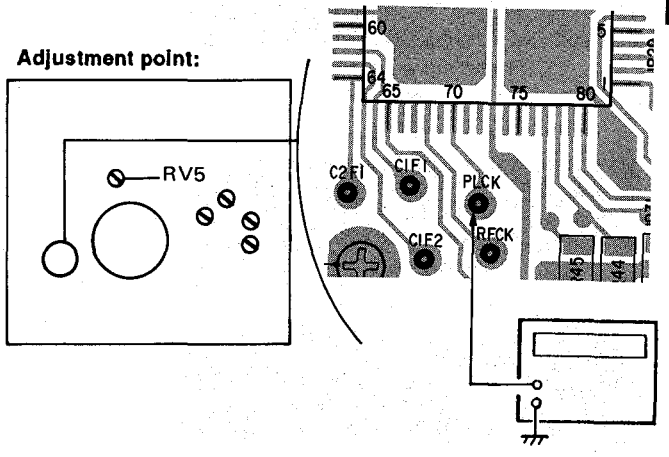
Note: The separation values in the two channels should be identical.
(A) – (B) = (C) – (D)

PLL free-run frequency adjustment

1. Remove the soldering bridge (EFM) from the RF board.
2. Connect the frequency counter to test point (PLCK).
3. Turn the power on and adjust RV5 so that frequency counter reading satisfies the specification.

Adjustable limits: 4.3118 to 4.3318MHz

Adjustment point:

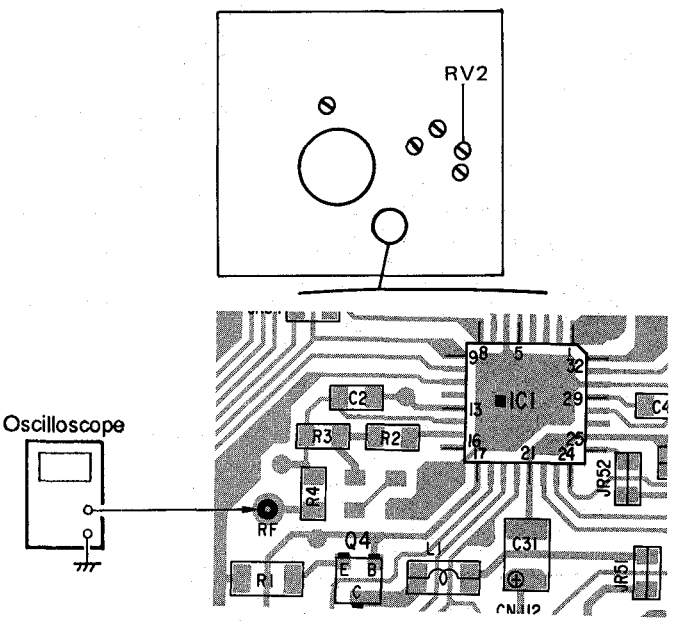


Focus offset adjustment

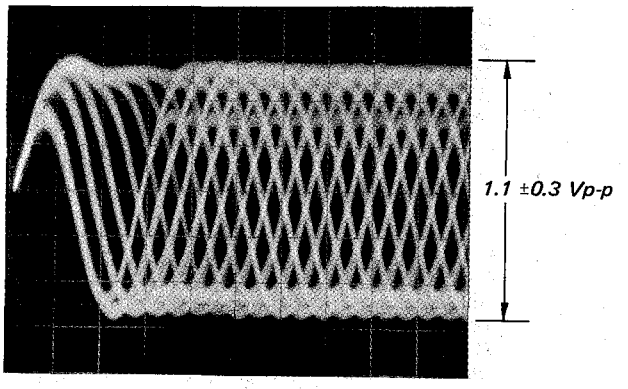
Adjustment:

1. Connect the oscilloscope to test point RF on the RF board.
2. Load a disc and set mode to PLAY.
3. Adjust RV2 so that the waveform on the oscilloscope (eye pattern) is maximum with good shape. "Well-shaped eye pattern" means that the mark " ◇ " is clearly distinguished at the center of the waveform.

Adjustment point: RF board



Volt/div: 200mV
Time/div: 0.5μsec

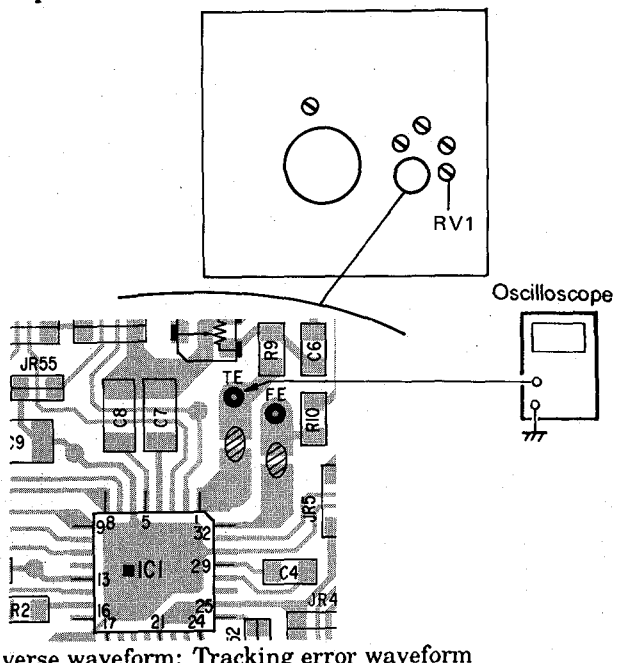


Tracking offset adjustment

Adjustment:

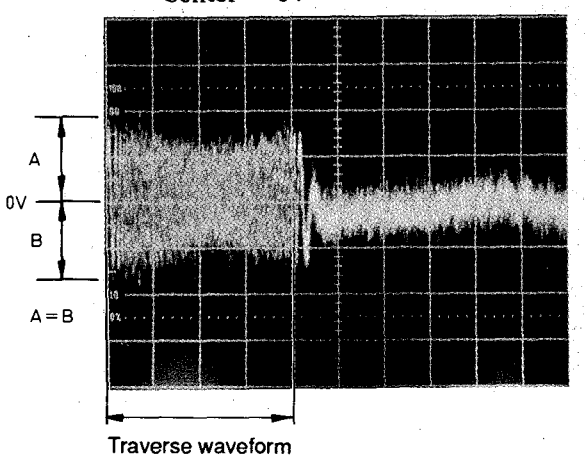
1. Connect the oscilloscope to test point TE on the MD board.
2. Load a disc and set mode to PLAY.
3. Press button ⏮ or ⏭ (◀◀ or ▶▶) and observe the traverse waveform.
4. Adjust RV1 so that the waveform is symmetric when cenetered at the level to be accessed.

Adjustment point: RF board



* Traverse waveform: Tracking error waveform which is observed when the track is traversed.

Volt/div: 0.5V
Time/div: 2msec
Center 0V



Traverse waveform
(100 track jump waveform)

Tracking gain adjustment (Coarse adjustment)

This adjustment is not required unless the following parts are replaced:

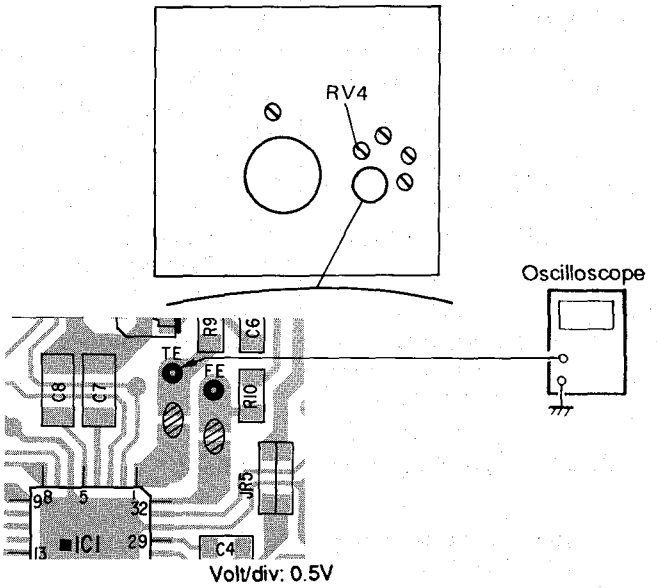
- Optical block
- BF503

Before starting this adjustment, complete the focus offset adjustment and the tracking off set adjustment.

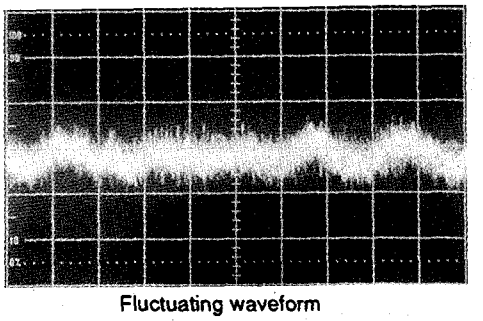
Adjustment:

1. Connect the oscilloscope to test point TE on the main board.
2. Load a disc and set mode to PLAY.
3. Turning RV4 clockwise, from the leftmost position, observe the waveform on the oscilloscope.
   Fix RV4 at the position where the waveform is become stable.

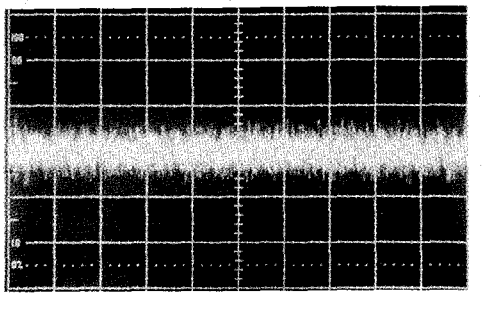
Adjustment point: RF board



Volt/div: 0.5V
Tile/div: 2msec

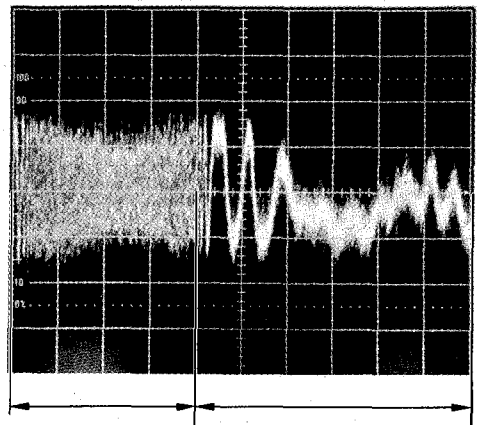


Fluctuating waveform



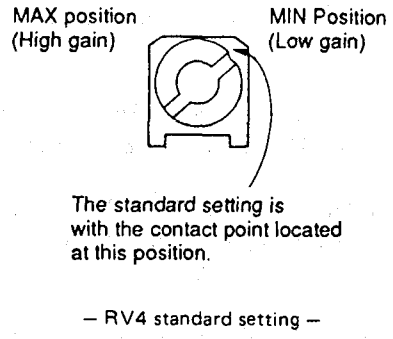
- If the gain is too low

  When music is selected by pressing button ⏮ or ⏭ , the tracking jump waveform is not focused completely and the music selection is delayed. (Break function does not work wall because its gain is too low.)



- If the gain is too high

  Noise due to scratches and dust is heard and the operation becomes unstable.


MAX position (High gain)
MIN Position (Low gain)
The standard setting is with the contact point located at this position.
– RV4 standard setting –

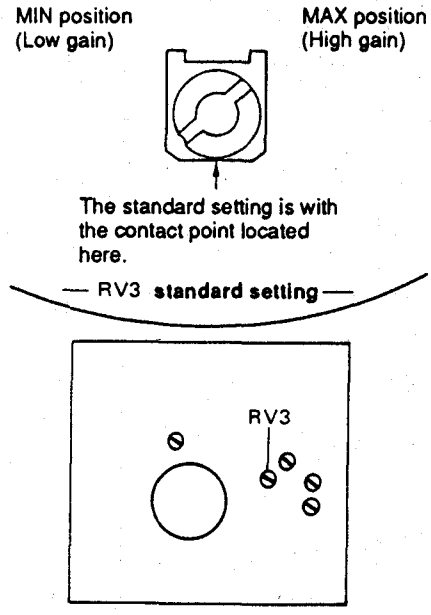
Focus gain adjustment (Coarse adjustment)

This adjustment is not required unless the following parts are replaced:

- Optical block
- RV3

Adjustment

1. Set RV3 to the standard position.
2. Check whether operation noise (white noise type) caused by the double-axis device (lens section of the optical block) is abnormally loud.
   If the operation noise is too loud, turn RV3 slightly counterclockwise.


MIN position (Low gain)
MAX position (High gain)
The standard setting is with the contact point located here.
— RV3 standard setting —
RV3

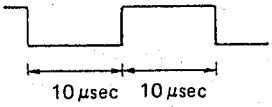
- If the gain is too low:
  Focus does not function and no music is selected.
- If the gain is too high:
  Noise caused by scratches and dust is heard and the operation becomes unstable.

SECTION 5
DIAGRAMS

5-1. MASTER MICROCOMPUTER IC504 (μPD75518GF-029-3B9)

Pin No.	Terminal	I/O	Description
1	CLOCK $\overline{\text{ON}}$/OFF	I	Clock function ON/OFF switching.
2	Vref	I	Reference voltage input pin of A/D conversion pin. 5 V is connected when POWER ON.
3	VDD	I	The power supply (5 V) of the micro computer is connected.
4	VDD		
5	MUTE	O	AUDIO MUTE output pin. Active when HIGH.
6	CD RST	O	CD servo IC resetting output pin. Starts it up approx. 300 msec. after the power supply of the servo has been turned ON with the CD PLAY pin.
7	CD DATA	O	SERIAL DATA output pin. Transmits the CD control command and data for the CD servo processor, and for signal processing.
8	CD LATCH	O	Signal output pin for CD DATA latching. The CD DATA is latched when low. Drops to LOW for more than 1 μsec.
9	CD CLK	O	Serial clock output pin for CD DATA reading. The servo IC reads the CD DATA at the rising edge of the CD CLK. (Maximum CLK frequency is 1 MHz.)
10	MD PL	O	Mechanism deck PLUNGER ON/OFF pin. Turns the plunger ON during the chucking and releasing of the disc. • During chucking (12 cm) When E SW is ON during C SW OFF, PL turns OFF by PL ON F SW ON approx. 300 msec. after C SW turns OFF. (8 cm) When E SW is OFF during C SW OFF, PL turns OFF by PL ON F SW ON approx. 300 msec. after E SW turns ON. • During eject PL turns on the moment the loading motor is reversed, and turns OFF approx. 300 msec. after F SW becomes OFF.
11	LM+	O	During disc loading, sets LM+ to HIGH, and LM– to LOW. During eject, sets LM– to HIGH, and LM+ to LOW.
12	LM–	O	
13	———	–	Not used.
14	D MUTE	O	Output which imposes muting at the digital DATA level in the signal processing IC. Used during access and sound muting, etc. Although the AUDIO MUTE (MUTE pin) will also be used at this time, D MUTE will be performed first when MUTE is ON, and performed later when MUTE is OFF.
15	$\overline{\text{APC}}$	O	CD PICK UP laser power ON/OFF control output.
16	———	–	Not used.

Pin No.	Terminal	I/O	Description
17	SUBQ	I	Q DATA input pin. Checks SUBQ when SCOR falls, and if it is HIGH (indicating that the data is correct), it will output SQCK and read the data.
18	———————	–	Not used.
19	SQCK	O	Clock output pin for reading the Q DATA. When SQCK is input to the signal processing IC, as the Q DATA will be input to the SUBQ pin, the data will be read at the SQCK rising edge. (Sets the period of SQCK to above 600 msec.)
20	———————	–	Not used.
21	HOT	I	Performs HIGH temperature detection to protect the CD PICK UP laser diode, and prevents CD play when the temperature is high. HIGH will be input during the high temperature condition.
22	$\overline{\text{F SW}}$	I	Mechanism deck sensor input pin. (Valid during MD ON condition.) Detects the completion of the DISC chucking operation. (LOW ACTIVE) MD PL turns OFF when F SW drops to LOW during loading.
23	SENS	I	Input pin which obtains various information from the servo IC. The output content changes according to the data transmitted to the IC. LIMIT SW condition, auto sequencer BUSY, etc. will be output.
24	$\overline{\text{ACC CHECK}}$	I	ACC line $\overline{\text{ON}}$/OFF detection.
25	Key microcomputer RST	O	Outputs HIGH when the KEY micro computer is reset during the starting up of the KEY micro computer V_{DD}, etc.
26	$\overline{\text{EMPHASIS}}$	O	Outputs LOW when a DISC which has been preemphasized is played back. (The Q DATA control bit coincides twice.)
27	———————	–	Not used.
28	———————	–	
29	E SW	I	Mechanism deck sensor (optical sensor) input pin. Used as the trigger at the beginning of the DISC chucking operation. Turns the MD PL ON approx. 300 msec. after the E SW becomes HIGH.
30	D SW	I	Mechanism deck sensor (optical sensor) input pin. 12 cm DISC and 8 cm DISC detections. Detects the completion of the 12 cm DISC EJECT. (LOW ACTIVE) After the 12 cm DISC has been ejected, detects loading start (turns ON at HIGH), when the DISC is inserted again with the C SW ON.

Pin No.	Terminal	I/O	Description
31	B SW	I	Detects that the center hole of the DISC passes by during mechanism deck sensor (optical sensor) loading and EJECT. (The optical sensor operates when the MD ON is HIGH. The rest is the same.)
32	$\overline{\text{G SW}}$	I	Mechanism deck sensor input pin. Displays the locked condition of the mechanism deck floating section. Sets to float lock condition when the DISC is ejected. The power supply of the servo IC has to be turned on because it is necessary to rotate the SLED motor inwards with the servo IC to turn the G SW ON. (CD PLAY pin ON)
33	VSS	I	Connected to GND.
34	TEST	I	
35	S MEMO $\overline{\text{ON}}$/OFF	I	
36	———	–	Not used.
37	$\overline{\text{TEL MUTE}}$	I	When this pin becomes LOW, the TELEPHONE MUTE function operates, and lowers the volume by 20 dB.
38	CLK OUT	O	The DATA output from the master micro computer will be read at the rising edge when the DATA is transmitted from the communication serial CLOCK output master by the BUS, and when the data is received from the slave. CLK period is above 10 μsec. 
39	S GAIN	O	Although the CD mechanism deck for only one DISC can PLAY both 12 cm and 8 cm CDs without an adaptor, as the 8 cm weight less, it is necessary to switch the GAIN of the spindle servo. When the DISC is loaded, it determines if the DISC is 12 cm or 8 cm according to the conditions of each sensor. If the DISC is 8 cm, the deck sets this pin to LOW. (Condition of the sensors) 12 cm: B.D.E HIGH C.F LOW 8 cm: B.E HIGH C.D.F LOW
40	———	–	Not used.
41	$\overline{\text{TEST}}$	I	When dropped to LOW, TEST mode 1 will be set.
42	ANT ON	O	ON/$\overline{\text{OFF}}$ control of the TUNER BLOCK power supply ANT REM.
43	ACC ON ILL	O	Turns ON/$\overline{\text{OFF}}$ by being linked to ACC line when the P/S SW is ON. Linked to POWER ON when the P/S SW is OFF.
44	POWER ON	O	ON/OFF control pin of the AMP REM, PRE AMP power supplies, PLL IC power supply, etc.

Pin No.	Terminal	I/O	Description
45	BEEP	O	Not used.
46	————————	–	Not used.
47	NOSE OFF	I	Detects the removal of the attaching and removing type operation block. Becomes HIGH when the operation block has come OFF. Turns OFF the KEY 5 V, ACC ON ILL, POWER during NOSE OFF. (Also turns OFF TUNER +B when TUNER ON.)
48	C SW	I	CD mechanism deck sensor input. CSW is used for detection when a DISC is inserted, and when the 8 cm DISC has been ejected. (Chattering during ON and OFF is recognized.) Performs DISC loading when a DISC is inserted during B/U ON, ACC ON, and NOSE ON. (Interrupting pin)
49	SCOR	I	Timing input pin which reads the Q DATA (time data, etc.) from the signal processing IC. Imposes an interruption at falling, and reads the Q DATA. (Interrupting pin)
50	DATA IN	I	DATA input pin for communication by BUS.
51	DATA OUT	O	Serial DATA output pin for BUS communication. Outputs SYNC pattern when communication is not performed in the BUS active condition. (IDLE condition)
52	CLK IN	I	Timing input for BUS serial DATA output.
53	B/U CHECK	I	BATT line ON/$\overline{\text{OFF}}$ detection. (Interrupts when rising and falling.)
54	VSS	I	Connected to GND.
55	XT1	–	The sub CLOCK (32,768 kHz) for CLOCK is connected.
56	XT2	–	
57	VSS	I	Connected to GND.
58	X1	–	The system CLOCK (6.0 MHz) is connected.
59	X2	–	
60	RESET	–	Set RESET.
61	$\overline{\text{SYSTEM RST}}$	O	Outputs when the master resets all systems connected to the BUS. (A different pin is used for the KEY micro computer of the attaching and removing type operation section = KEY micro computer RST.)

<table>
<tr><th>Pin No.</th><th>Terminal</th><th>I/O</th><th>Description</th></tr>
<tr><td>62</td><td>$\overline{\text{BUS ON}}$</td><td>O</td><td>When the BUS is in the ACTIVE condition, the BUS ON LINE in the BUS will become HIGH. This pin controls the $\overline{\text{ON}}$/OFF of this BUS ON 5 V.
• Sets to OFF during the SLEEP condition. (When communication is not performed during OFF, ACC OFF.)
• Sets to ON during the ACTIVE condition. (During communication or IDLE condition.)</td></tr>
<tr><td>63</td><td>$\overline{\text{KEY 5 V ON}}$</td><td>O</td><td>Turns the KEY 5 V ON during KEY micro computer VDD $\overline{\text{ON}}$/OFF, control, B/U ON, and NOSE ON.</td></tr>
<tr><td>64</td><td>———————</td><td>–</td><td rowspan="2">Not used.</td></tr>
<tr><td>65</td><td>———————</td><td>–</td></tr>
<tr><td>66</td><td>VOL CE</td><td>O</td><td>Outputs HIGH when the DATA is transmitted to the electronic VOL.</td></tr>
<tr><td>67</td><td>VOL CLK</td><td>O</td><td>Pin which outputs CLOCK which transmits to the VOL IC.</td></tr>
<tr><td>68</td><td>VOL DATA</td><td>O</td><td>Pin which outputs DATA which transmits to the VOL IC.</td></tr>
<tr><td>69</td><td>CD PLAY</td><td>O</td><td>Turns the servo IC power supply ON/$\overline{\text{OFF}}$.
Turns it ON during CD PLAY, the float lock operation.</td></tr>
<tr><td>70</td><td>MD ON</td><td>O</td><td>Power supply ON/$\overline{\text{OFF}}$ control output pin of the mechanism deck sensor, loading motor, and plunger.
When the mechanism deck is to be operated during the float lock condition, it can be operated merely with MD ON.</td></tr>
<tr><td>71</td><td>S2</td><td>O</td><td rowspan="2">AUDIO signal switching control output.
The four types of SCORE-CD and TUNER, AUDIO input from the NEW BUS slave, AUX input of WALKMAN, etc. of this unit can be set.
<table><tr><th>S1</th><th>S2</th><th>SOURCE</th></tr><tr><td>0</td><td>0</td><td>CD</td></tr><tr><td>1</td><td>0</td><td>AUX</td></tr><tr><td>0</td><td>1</td><td>SLAVE</td></tr><tr><td>1</td><td>1</td><td>TUNER</td></tr></table>1: High
0: Low</td></tr>
<tr><td>72</td><td>S1</td><td>O</td></tr>
<tr><td>73</td><td>VSS</td><td>I</td><td>Connected to GND.</td></tr>
<tr><td>74</td><td>P/S SW ON/$\overline{\text{OFF}}$</td><td>I</td><td>PS SW ON mode which sets the lighting of the FUNCTION KEY to ON or OFF when the ALL OFF condition has been set during ACC ON. (PLUS LCD display power supply when a CLOCK is present.)</td></tr>
<tr><td>75</td><td>$\overline{\text{WM IN}}$</td><td>I</td><td>WALKMAN input button valid/invalid switching.</td></tr>
</table>

Pin No.	Terminal	I/O	Description
76	GFS	I	Becomes HIGH when the frame sync (sync signal recorded in the DISC) is locked by PLL. When GFS stays LOW for more than 32 msec. during PLAY, it turns the D MUTE ON and the SLED servo OFF. When the GFS becomes HIGH once again and stays HIGH for more than 64 msec., it turns the D MUTE OFF and the SLED servo ON. When the GFS stays LOW for more than 5μsec., it determines that a malfunction has occurred, and performs stop and ejection.
77	FOK	I	As it becomes HIGH by the timing which can be focused during FOCUS search, it turns the FOCUS servo ON by detecting the timing (HIGH). (This process is not performed when the automatic sequence is used.) Becomes HIGH when focused during PLAY. If it remains LOW for more than 64 msec., it determines that the timing is out of FOCUS, and performs FOCUS search once again. It searches the point which is 1μsec. ahead of the "out of FOCUS" point, and performs PLAY.
78	$\overline{10}$/6 KEY	I	Pin which switches the preset KEY to 10-KEY or 6-KEY.
79	$\overline{\text{DIGITAL IN}}$	I	DIGITAL input function switching pin.
80	$\overline{\text{ALARM}}$	I	Performs switching of the alarm output function when the ACC KEY has been turned OFF without removing the nose piece.

5-2. TUNER MICROCOMPUTER IC670 (LC7071NM)

Pin No.	Terminal	I/O	Description
1	OSC1	I	4 MHz ceramic oscillator connection.
2	———————	–	GND.
3	———————	–	
4	$\overline{\text{RES}}$	–	System resetting input pin.
5	CLOCK-IN	–	RDS demodulation CLOCK input pin.
6	DATA-IN	–	RDS demodulation DATA input pin.
7	CRRR·SEL	–	Error correction ON/OFF selection input pin. Set to level "H".
8	———————	–	GND.
9	———————	–	Not used.
10	RECIVE	–	Outputs level "L" during RDS DATA receiving.
11	———————	–	GND.
12	———————	–	GND.
13	ERROR	–	Not used.
14	DATA-START	–	Serial DATA output block DATA start signal. Outputs level "L" during DATA start.
15	DATA-OUT	–	Serial DATA output pin.
16	CLOCK-OUT	–	Serial CLOCK output pin.
17	———————	–	GND.
18	OSC2	O	4 MHz ceramic oscillator connection.

5-3. MASTER MICROCOMPUTER IC601 (μPD75116GF-F40-3BE)

Pin No.	Terminal	I/O	Description
1	———————	–	Not used.
2	———————	–	
3	———————	–	(Connected to GND.)
4	———————	–	
5	———————	–	
6	———————	–	
7	RESET	–	Reset input pin.
8	X2	–	Connecting pins of the ceramics oscillator (4.19 MHz).
9	X1	–	
10	PLL-DI	I	Data input pin for the PLL-IC.
11	PLL-DO	O	Data output pin for the PLL-IC.
12	PLL-CLK	O	Clock output pin for the PLL-IC.
13	PLL-CE	O	Chip enable output pin for the PLL-IC.
14	———————	I	MODE select input pins.
15	———————	I	
16	———————	I	
17	———————	I	
18	———————	I	
19	———————	I	
20	———————	I	
21	———————	I	
22	RDS-DI	I	RDS data-in input pin. Reads the DATA during INT1 (RDS-CLK) interrupting processing. Performs processing at every block (4-bit), and sets the request flag at every 24-bit.
23	$\overline{\text{RDS-D-Start}}$	I	RDS data start signal input pin. The beginning of the DATA is detected during INT1 (RDS-CLK) interrupting processing by this pin.
24	$\overline{\text{RDS-ERR}}$	I	RDS quality input pin. Detects if the RDS DATA has been read properly, and uses it.
25	$\overline{\text{RDS-Receive}}$	I	RDS receive input pin. Receives the RDS DATA at level "L". When level "H" is detected for 5 seconds continuously, it determines that the RDS signal has not been read, and begins AF operations.
26	VSS	–	GND pin.
27	———————	–	(Connected to GND.)

Pin No.	Terminal	I/O	Description
28	————	–	(Connected to GND.)
29	RDS-CLK	I	Serial interface CLOCK input pin. Connected to the CLOCK OUT pin. Sets the INT1 mode register (IM1) so that interruptions will be imposed by interrupting processing, and clock rising.
30	BUS-ON	I	Bus on input pin. Interrupting pin which detects bus ON/OFF. Recognizes the interrupting request flag (IREQ0) when the micro computer is in the operation mode. When the micro computer is in the STOP mode, this interruption is used to release the STOP mode. Before the STOP command is executed, it sets the interruption permission flag (IE0), interruption request flag (IE4), and INT0 edge detection mode register (IM0).
31	————	–	Not used. (Connected to VSS or VDD.)
32	ST IN	I	STEREO input pin. STEREO at level "L". This pin becomes "L" during forcible monaural output. The display DATA will always be transmitted at "0".
33	Vsm (FM)	I	FM S meter voltage detection pin. Uses the AD conversion function during BTM.
34	Vsm (AM)	I	AM S meter voltage detection pin.
35	————	–	Not used. (Connected to VSS or VDD.)
36	————	–	
37	ANT-ON	O	ANT-ON output pin. Outputs level "H" when the POWER of the TUNER is ON.
38	$\overline{\text{RDS-RESET}}$	O	System reset output pin. When the PLL-IC N value is to be changed, outputs level "L" for several msec., to reset. When the power of the tuner is OFF, and during AM (MW, SW, LW), outputs level "L".
39	Request	O	BUS request output pin. Pin for requesting communication. Requests at level "H".
40	LINK-OFF	O	BUS link OFF output pin. Links OFF at output level "H". Becomes "L" when the BUS is continuous. Remains at output level "L" if the link condition is set during the CLOCK STOP mode, and sets the input condition when the BACKUP turns OFF.
41	SI	I	BUS DATA input pin. Serial DATA input.
42	SO	O	BUS DATA output pin. Serial DATA output.
43	SCK	I	BUS CLOCK input pin. Serial CLOCK input for communication by the BUS. Outputs the CLOCK from IC504 during both transmission and receiving with the CLOCK sync 8 bits.

Pin No.	Terminal	I/O	Description
44	B UP	I	BACKUP detection input pin. Input pin for detecting BACKUP, and used for interrupting. When the micro computer is in the operation mode, it recognizes the BACKUP modification by the detections of both rising and falling edges of the interrupting request flag (IRQ4). As interruption is not performed, the interrupting permission flag (IE4) is prohibited. When the micro computer is in the STOP mode, this interruption is used to release the STOP mode.
45	———	–	Not used.
46	———	–	
47	———	–	
48	$\overline{\text{MONO}}$	O	Forcible monaural output pin. Output pin for switching the STEREO mode level "H" output, and the forcible monaural mode level output "L". When the AM band is set, the MS4 (mode selector pin) is valid only at "1". During TA interruption and alarm, it will output the forcible monaural level output "L" regardless of the mode set.
49	———	–	Not used.
50	———	–	
51	$\overline{\text{FM-FE-ON}}$	O	FM power supply control output pin. Outputs level "L" when FM.
52	$\overline{\text{AM-FE-ON}}$	O	AM power supply control output pin. Outputs level "L" when AM.
53	MUTE	O	MUTE output pin.
54	———	–	Not used.
55	———	–	
56	———	–	
57	V_{DD}	–	Power supply pin.
58	VDD	–	
59	SD	I/O	SD input pin. Determines the STOP levels of SEEK, AUTO-MEMORY, SCAN, etc. Outputs level "L" during AM receiving (during MUTE-OFF).
60	———	–	Not used.
61	EEP-SCK	O	EEP PROM CLOCK output pin.
62	EEP-SDA	I/O	EEP PROM DATA input/output pin.
63	———	–	Not used.
64	———	–	

5-4. TUNER MICROCOMPUTER IC603 (LC7216M)

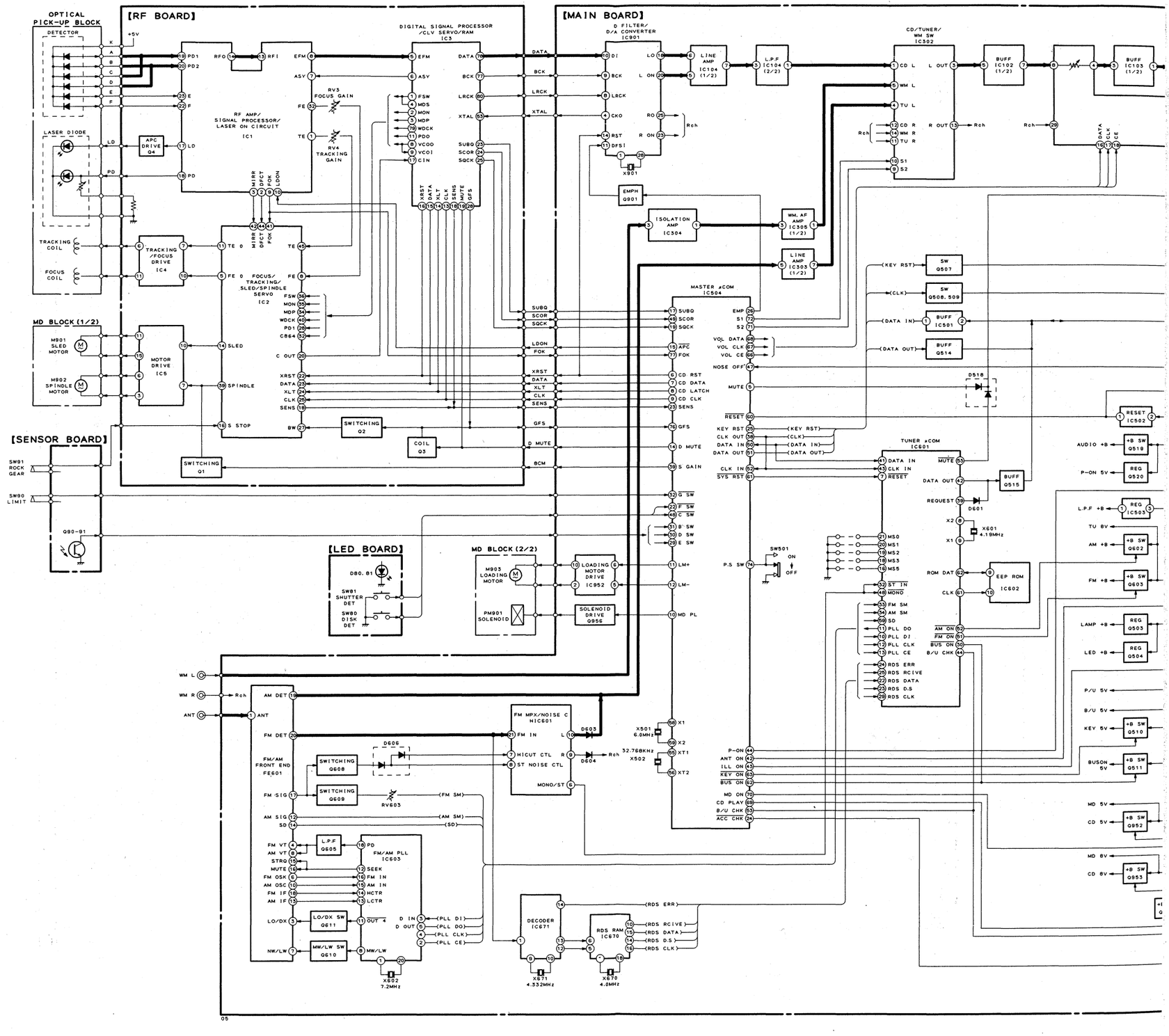
Pin No.	Terminal	I/O	Description
1	XIN	I	Connecting pin of the crystal oscillator. (7.2MHz)
2	CE	—	Chip enable input pin.
3	DI	—	Data input pin.
4	CL	—	Clock input pin.
5	DO	—	Data output pin.
6	————	—	Not used.
7	————	—	
8	LW−ON	O	LW (SW) switching control output. Output level "H" when LW (SW) band. Outputs level "L" for the rest.
9	————	—	Not used.
10	————	—	
11	$\overline{\text{DX/LO}}$	O	DX/LO switching control output pin. Output level "H" LOCAL.
12	SEEK	O	SEEK OUT output pin. Output level "L" when change the frequency.
13	LCTR	–	General−counter frequency measurement signal input pin.
14	HCTR	–	General−counter frequency measurement signal input pin.
15	AMIN	–	AM local oscillator signal input pin.
16	FMIN	–	FM local oscillator signal input pin.
17	VDD	–	Power supply pin. (4.5V−6.5V)
18	PD	–	Change pump output pin.
19	VSS	–	GND.
20	XOUT	O	Connecting pin of the crystal oscillator. (7.2MHz)

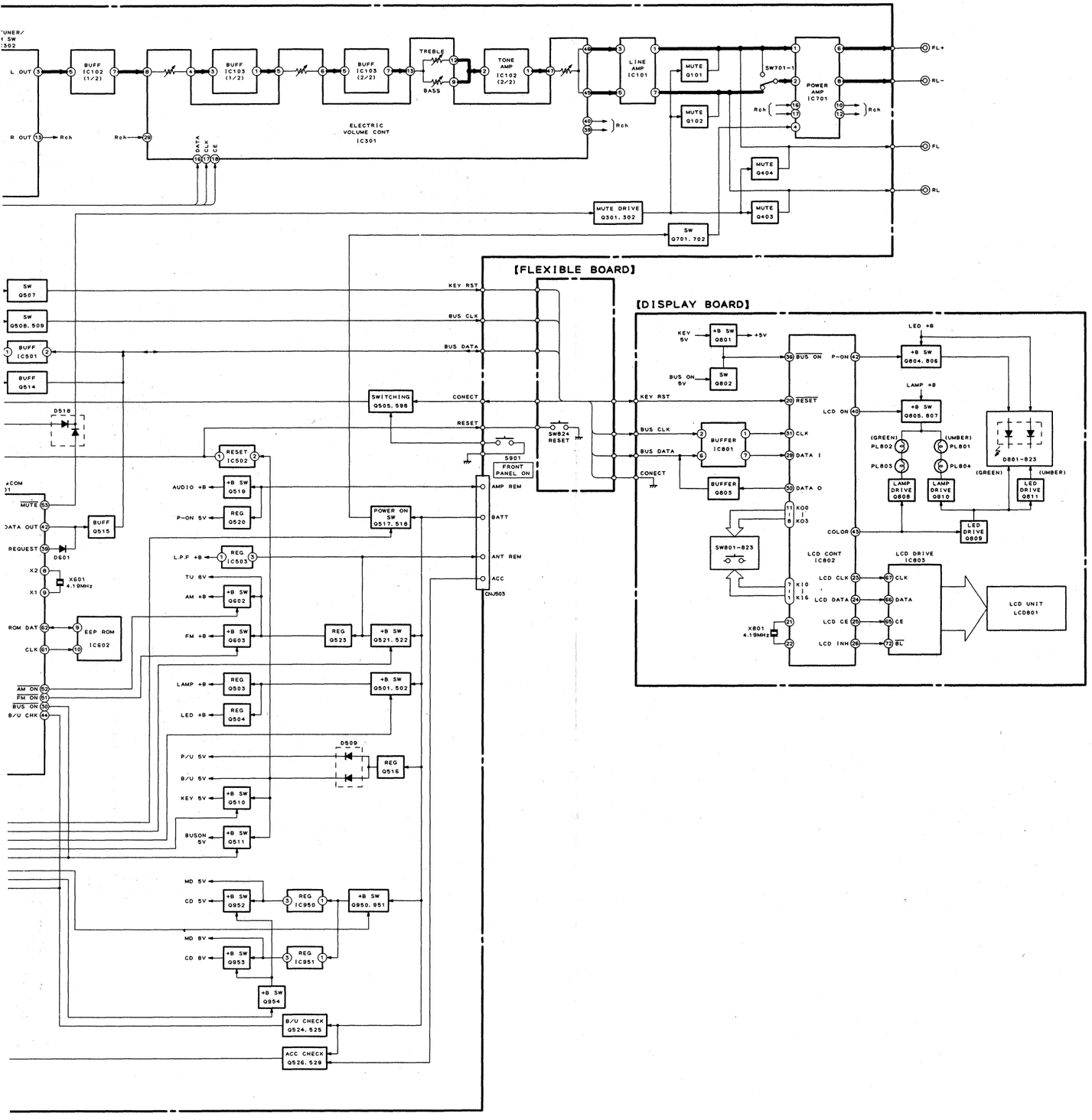
5-5. KEY DISPLAY MICROCOMPUTER IC802 (μPD75008GB-3B4)

Pin No.	Terminal	I/O	Description
1	KI6	I	KEY SCAN input pin.
2	KI5	I	
3	KI4	I	
4	KI3	I	
5	KI2	I	
6	KI1	I	
7	KI0	I	
8	KO3	O	KEY SCAN output pin.
9	KO2	O	
10	KO1	O	
11	KO0	O	
12	NC	–	(Connected to VDD.)
13	NC	–	Not used. (Connected to VDD.)
14	NC	–	
15	NC	–	
16	NC	–	
17	VSS	–	VSS pin.
18	XT1	–	(Connected to GND.)
19	XT2	–	Not used.
20	$\overline{\text{RESET}}$	I	Resetting pin.
21	X1	I	System CLOCK oscillation connecting pin. Connected to 4.19 MHz.
22	X2	–	
23	LCD CLK	O	Pin which outputs CLOCK to the LCD DRIVER IC. (IC703: TC9240F)
24	LCD DATA	O	Pin which outputs DATA to the LCD DRIVER IC.
25	LCD CE	O	Pin which outputs CE to the LCD DRIVER IC. Used as a latch signal when transmitting the DATA.
26	LCD INH	O	Pin which outputs INH to the LCD DRIVER IC.
27	LINK OFF	O	Not used. (NC)
28	REQ	O	UNILINK BUS interface request pin. Outputs HIGH when requesting communication to the master micro computer (IC501).
29	DATA IN	I	Serial DATA input and communication timing detections input pin. (UNILINK BUS interface, DATA input pin)
30	DATA OUT	O	Serial DATA output pin. (UNILINK BUS interface, DATA output pin)

Pin No.	Terminal	I/O	Description
31	CLK IN	I	Clock input pin for serial communication. (UNILINK BUS interface, clock input pin)
32	BU CHECK	I	Power supply voltage detection pin.
33	———————	–	(Connected to GND.)
34	NC	–	(Connected to VDD.)
35	$\overline{\text{TV CONT}}$	I	Initial setting pin for the ON/OFF of the hideaway TV tuner control function. TV control will be ON at LOW input, and OFF at HIGH input.
36	$\overline{\text{BUS ON}}$	I	UNILINK BUS interface, BUS ON pin. BUS communication is possible at LOW input.
37	SIRCS	–	(Connected to GND.)
38	NC	–	(Connected to VDD.)
39	VDD	–	VDD pin.
40	LCD ON	O	Power supply control pin of the LCD back-light and LCD DRIVER IC.
41	ACC-ON ILL	O	Output pin for lighting the function key buttons, etc. HIGH output at ACC ON, and LOW output at ACC OFF. (When the power select SW is ON.) (Not used.)
42	P-ON ILL	O	Output pin for lighting buttons other than the function keys. HIGH output at power ON, and LOW output at OFF.
43	COLOR	O	Output pin for switching lighting colors. Green at HIGH output, output, and amber at LOW output.
44	K17	–	Not used.

5-6. BLOCK DIAGRAM




L OUT
R OUT
Rch
BUFF IC102 (1/2)
BUFF IC103 (1/2)
BUFF IC103 (2/2)
TREBLE
BASS
TONE AMP IC102 (2/2)
ELECTRIC VOLUME CONT IC301
DATA
CLK
CE
LINE AMP IC101
MUTE Q101
MUTE Q102
SW701-1
POWER AMP IC701
MUTE Q404
MUTE Q403
MUTE DRIVE Q301, 302
SW Q701, 702
FL+
RL-
FL
RL
[FLEXIBLE BOARD]
SW Q507
SW Q508, 509
BUFF IC501
BUFF Q514
D518
KEY RST
BUS CLK
BUS DATA
CONECT
RESET
SWITCHING Q505, 508
SW824 RESET
S901 FRONT PANEL ON
RESET IC502
AUDIO +B
+B SW Q519
P-ON 5V
REG Q520
POWER ON SW Q517, 518
AMP REM
BATT
ANT REM
ACC
CNJ503
L.P.F +B
REG IC503
TU 8V
AM +B
+B SW Q602
FM +B
+B SW Q603
REG Q523
+B SW Q521, 522
LAMP +B
REG Q503
+B SW Q501, 502
LED +B
REG Q504
P/U 5V
B/U 5V
D509
REG Q516
KEY 5V
+B SW Q510
BUSON 5V
+B SW Q511
MD 5V
CD 5V
+B SW Q952
REG IC950
+B SW Q950, 951
MD 8V
CD 8V
+B SW Q953
REG IC951
+B SW Q954
B/U CHECK Q524, 525
ACC CHECK Q526, 529
MUTE
DATA OUT
REQUEST
D601
X2
X1
X601 4.19MHz
ROM DAT
CLK
EEP ROM IC602
AM ON
FM ON
BUS ON
B/U CHK
[DISPLAY BOARD]
KEY 5V
+B SW Q801
+5V
BUS ON 5V
SW Q802
BUS ON
RESET
BUFFER IC801
BUFFER Q803
CLK
DATA I
DATA O
K00
K05
SW801-823
K10
K16
X801 4.19MHz
LCD CONT IC802
LCD DRIVE IC803
LCD CLK
LCD DATA
LCD CE
LCD INH
CLK
DATA
CE
BL
LCD UNIT LCD801
P-ON
+B SW Q804, 806
LED +B
LCD ON
LAMP +B
+B SW Q805, 807
COLOR
(GREEN)
(UMBER)
PL802
PL803
PL804
PL801
LAMP DRIVE Q808
LAMP DRIVE Q810
D801-823
LED DRIVE Q811
LED DRIVE Q809

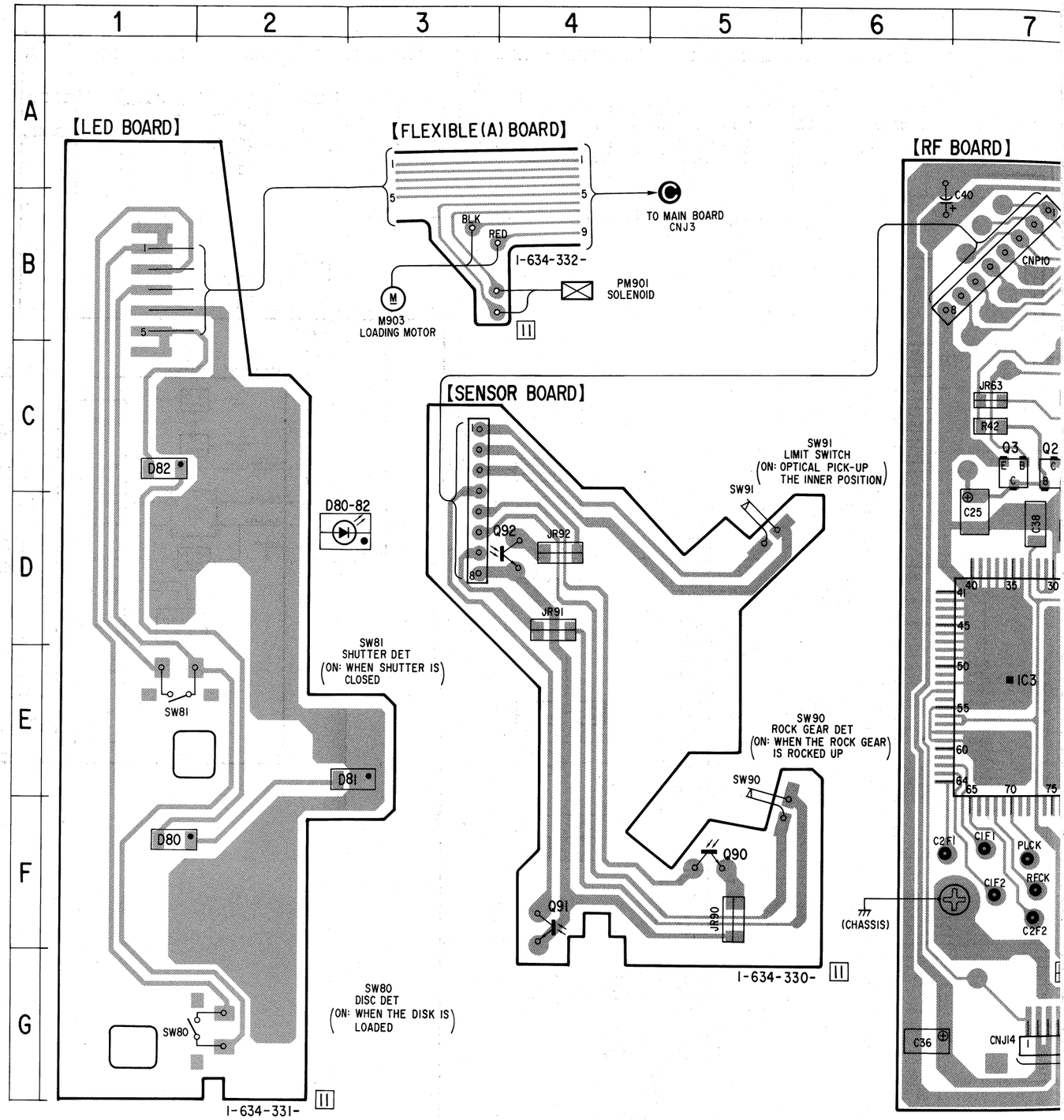
5-7. PRINTED WIRING BOARDS (MD Section)

- **Semiconductor Location**

Ref. No.	Location
D80	F-1
D81	E-3
D82	C-1
IC1	F-11
IC2	D-11
IC3	E-7
IC4	B-11
IC5	B-10
Q1	E-10
Q2	C-7
Q3	C-7
Q4	G-10
Q90	F-5
Q91	F-4
Q92	D-4

Note:

- ○——— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.



5	6	7	8	9	10	11	12	13

BOARD
3

SW91
LIMIT SWITCH
(ON: OPTICAL PICK-UP
THE INNER POSITION)

SW91

SW90
ROCK GEAR DET
(ON: WHEN THE ROCK GEAR
IS ROCKED UP

SW90

Q90

JR90

I-634-330- II

【RF BOARD】

M901
SLED MOTOR

M902
SPINDLE MOTOR

B TO MAIN BOARD

C40

BLK

RED

CNP10

CNJ13

CNJ11

IC5

IC4

IC3

IC2

IC1

Q1

Q2

Q3

Q4

TH1

TH2

RV1

RV2

RV3

RV4

RV5

L1

L2

JR1 JR2 JR3 JR4 JR5 JR6 JR7 JR8 JR9 JR10 JR11 JR12 JR13 JR14 JR15 JR16 JR17 JR18 JR19 JR20 JR21 JR22 JR23 JR24 JR25 JR26 JR27 JR28 JR29 JR30 JR31 JR32 JR33 JR34 JR52 JR53 JR54 JR55 JR56 JR57 JR58 JR59 JR60 JR61 JR62 JR63 JR64 JR65

R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20 R21 R22 R23 R24 R25 R26 R27 R28 R29 R30 R31 R32 R33 R34 R35 R36 R37 R38 R39 R40 R41 R42 R43 R44 R45 R46 R47 R48 R49 R50 R51 R52 R53 R54

C1 C2 C3 C4 C5 C6 C7 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C29 C30 C31 C34 C35 C36 C37 C38 C39

C2F1 C1F1 PLCK C1F2 RFCK C2F2

RF EFM TE FE

(CHASSIS)

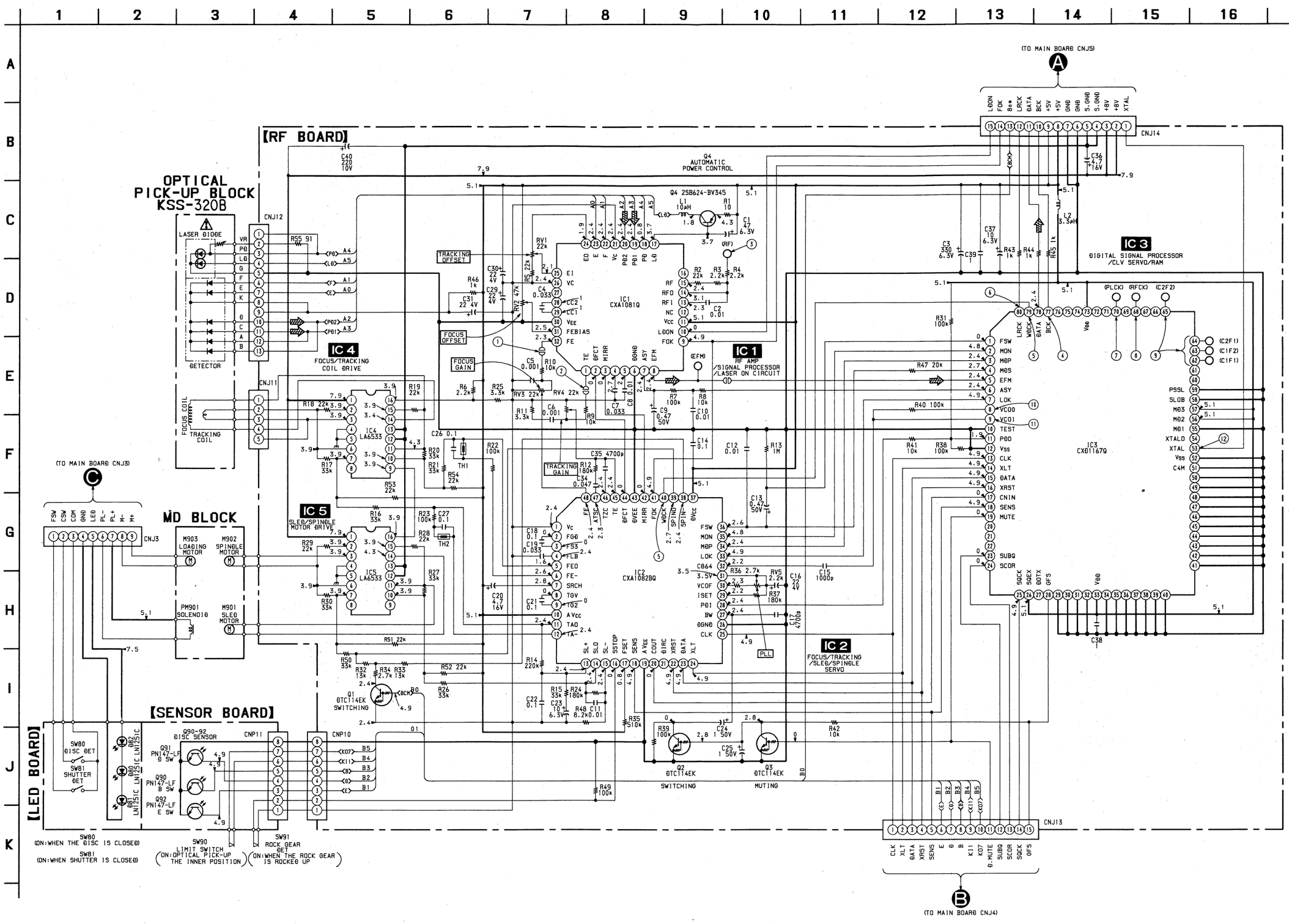
CNJ14

CNJ12

A TO MAIN BOARD

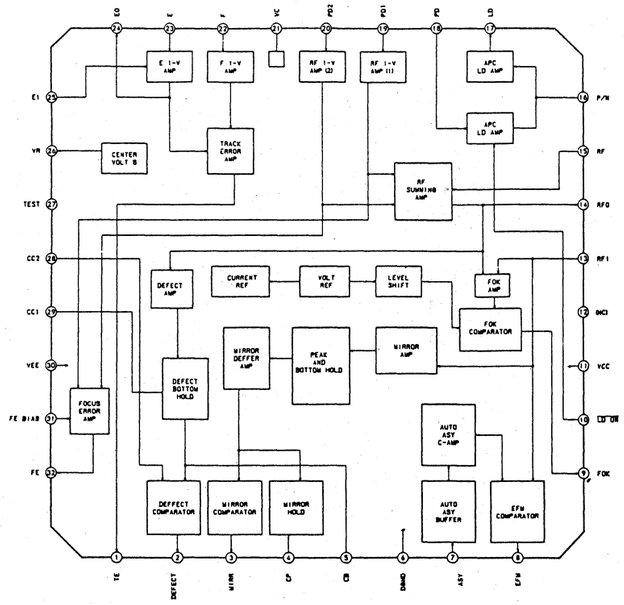
TO OPTICAL PICK-UP BLOCK KSS-320B

I-634-339- II

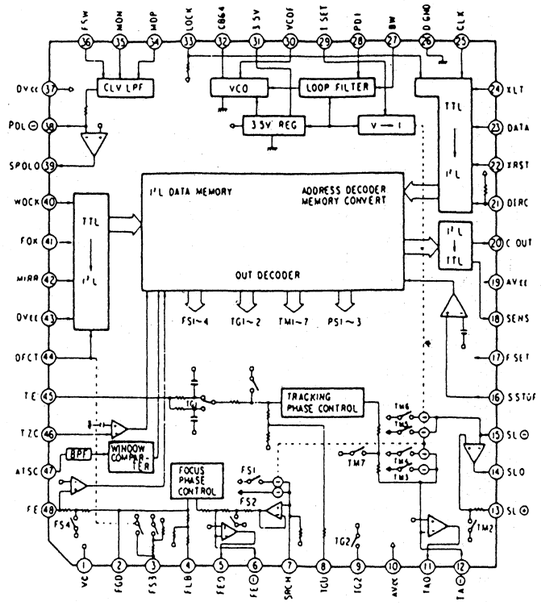

【RF BOARD】
OPTICAL PICK-UP BLOCK KSS-320B
LASER DIODE
DETECTOR
FOCUS COIL
TRACKING COIL
IC 4
FOCUS/TRACKING COIL DRIVE
IC 1
RF AMP /SIGNAL PROCESSOR /LASER ON CIRCUIT
IC 3
DIGITAL SIGNAL PROCESSOR /CLV SERVO/RAM
IC 5
SLED/SPINDLE MOTOR DRIVE
IC 2
FOCUS/TRACKING /SLED/SPINDLE SERVO
Q4 AUTOMATIC POWER CONTROL
Q4 2SB624-BV345
IC1 CXA1081Q
IC2 CXA1082BQ
IC3 CXD1167Q
IC4 LA6533
IC5 LA6533
Q1 DTC114EK SWITCHING
Q2 DTC114EK SWITCHING
Q3 DTC114EK MUTING
TRACKING OFFSET
FOCUS OFFSET
FOCUS GAIN
TRACKING GAIN
MD BLOCK
M903 LOADING MOTOR
M902 SPINDLE MOTOR
M901 SLED MOTOR
PM901 SOLENOID
【SENSOR BOARD】
【LED BOARD】
Q90-92 DISC SENSOR
SW80 DISC DET
SW81 SHUTTER DET
SW90 LIMIT SWITCH (ON:OPTICAL PICK-UP THE INNER POSITION)
SW91 ROCK GEAR DET (ON:WHEN THE ROCK GEAR IS ROCKED UP)
SW80 (ON:WHEN THE DISC IS CLOSED)
SW81 (ON:WHEN SHUTTER IS CLOSED)
(TO MAIN BOARD CNJ5)
(TO MAIN BOARD CNJ3)
(TO MAIN BOARD CNJ4)
CNJ14
CNJ13
CNJ12
CNJ11
CNJ3
CNP11
CNP10

• IC Block Diagrams

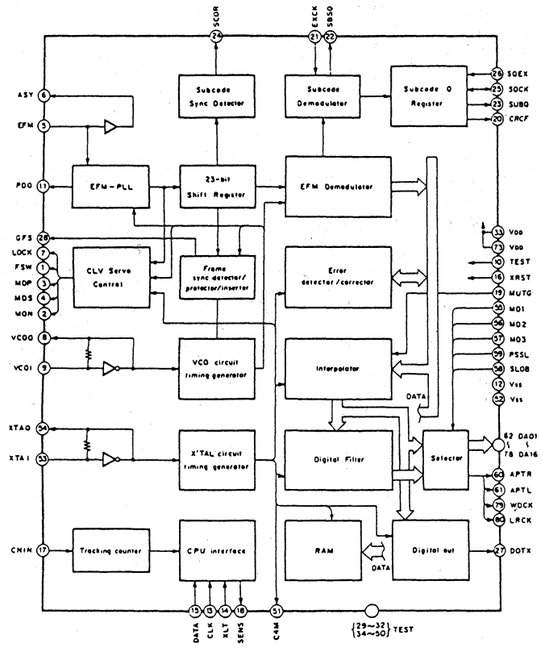
IC1 CXA1081Q



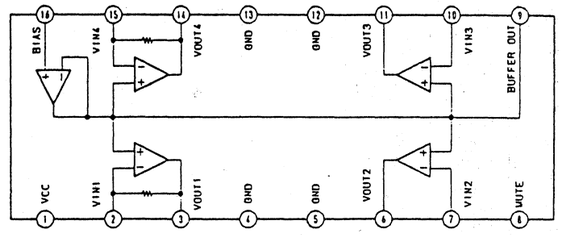
IC2 CXA1082BQ



IC3 CXD1167Q



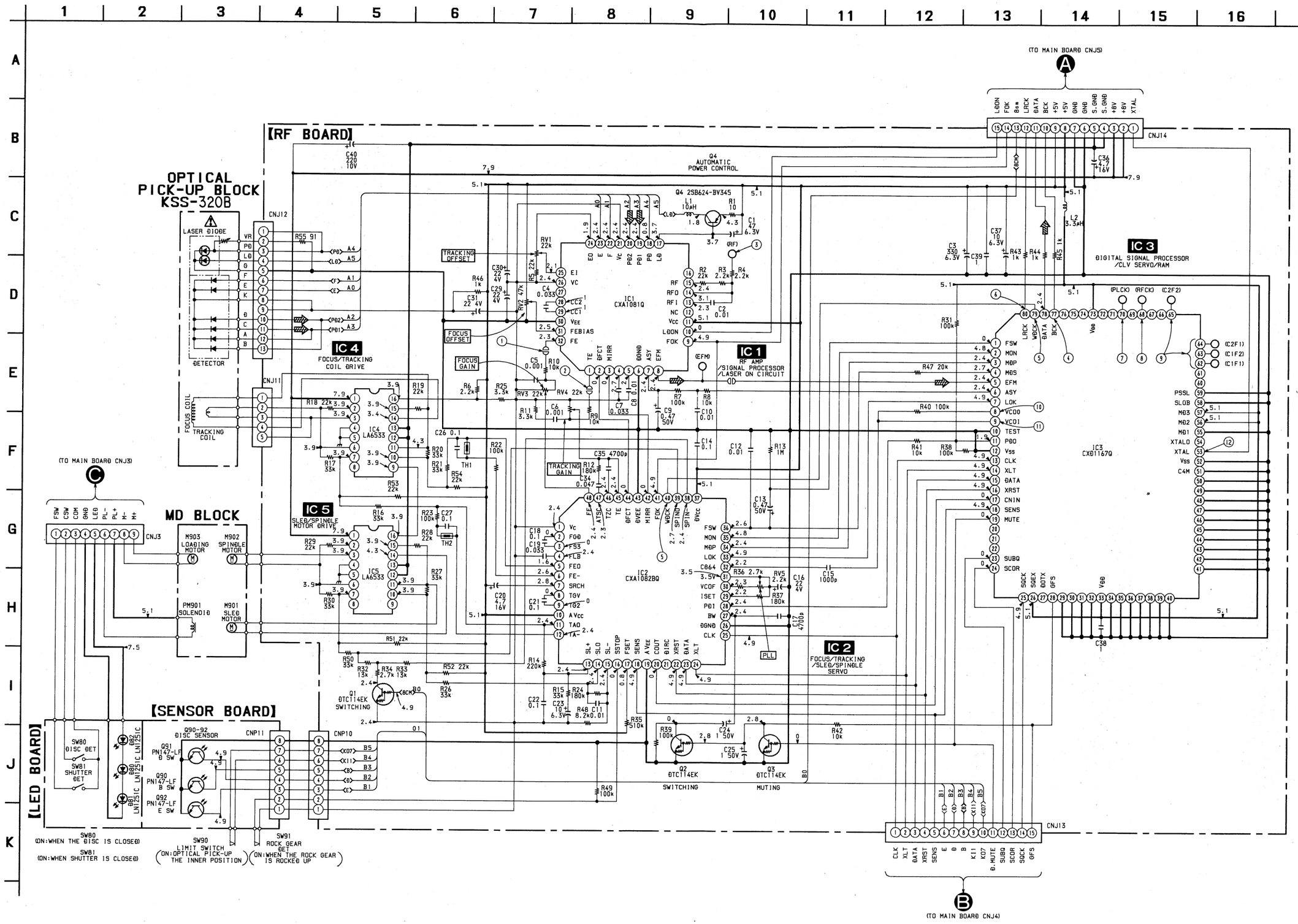
IC4, 5 LA6533



MD Section

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/10 W or less unless otherwise specified.
- ▬▬ : B + Line.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from external power voltage jack.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD PLAY
- Circled numbers refer to wavefroms.
- Signal path.
  ⇨ : CD



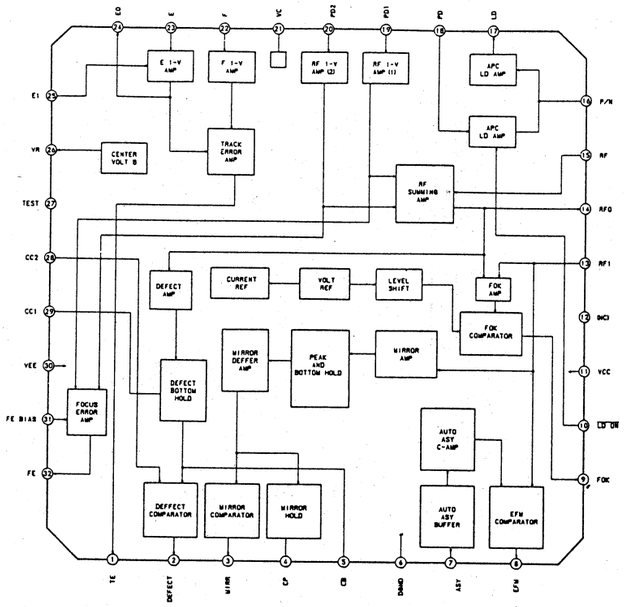
MD Section

Note:

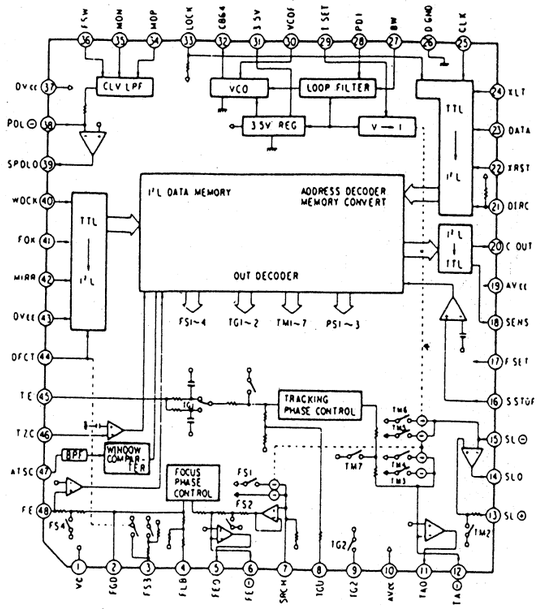
- All capacitors 50 WV or le and tantalums.
- All resistors a specified.
- ▬▬ : B +
- Power voltage supply from ext
- Voltages and no-signal condi no mark : CD F
- Circled number
- Signal path. ⇨ : CD

• IC Block Diagrams

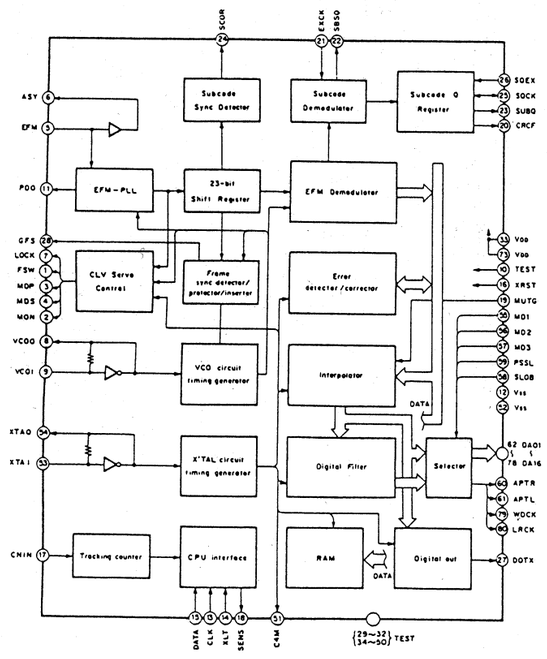
IC1 CXA1081Q



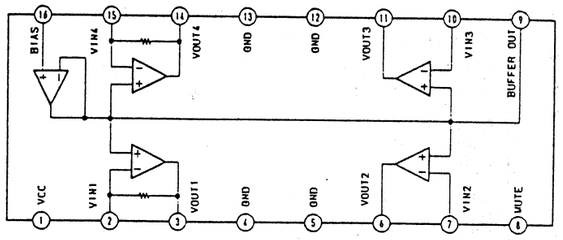
IC2 CXA1082BQ



IC3 CXD1167Q



IC4, 5 LA6533



MD Section

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/10 W or less unless otherwise specified.
- ▬▬ : B + Line.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from external power voltage jack.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD PLAY
- Circled numbers refer to wavefroms.
- Signal path.
  ⇨ : CD

5-9. PRINTED WIRING BOARDS (MAIN Section)

• See page 55 for Semiconductor Lead Layouts.

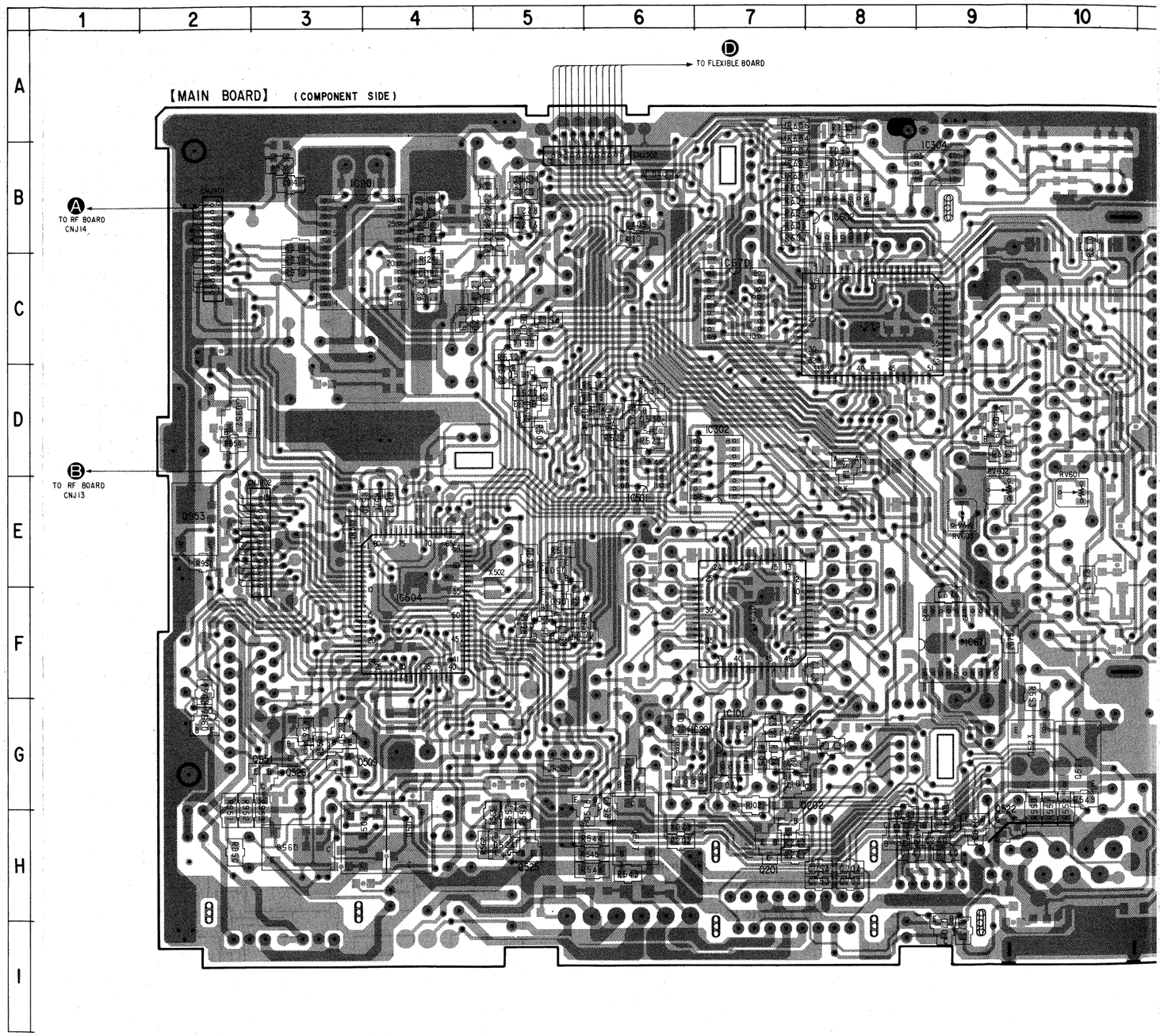
• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D101	G-17	Q101	G-7
D102	G-16	Q102	G-7
D201	G-17	Q201	H-7
D202	F-18	Q202	H-7
D405	G-20	Q301	G-17
D406	E-20	Q302	G-7
D409	H-17	Q402	H-8
D410	G-17	Q403	H-9
D411	H-20	Q404	H-9
D501	G-21	Q405	H-8
D502	G-21	Q501	H-21
D503	G-19	Q502	H-21
D504	G-19	Q503	H-4
D506	D-6	Q504	H-4
D507	F-5	Q505	B-17
D508	D-18	Q507	C-5
D509	G-3	Q508	E-5
D510	G-20	Q509	F-5
D511	G-18	Q510	D-5
D512	H-20	Q511	D-5
D513	G-14	Q514	D-5
D514	H-13	Q515	F-5
D515	H-20	Q516	G-21
D516	H-22	Q517	H-6
D517	G-15	Q518	H-6
D518	D-8	Q519	G-6
D601	D-16	Q520	H-19
D602	D-15	Q521	G-10
D603	D-14	Q522	H-9
D604	D-14	Q523	G-10
D606	D-15	Q524	H-5
D731	H-15	Q525	H-5
D901	C-19	Q526	G-3
D950	D-22	Q529	G-3
D951	F-22	Q530	D-6
D952	F-22	Q531	D-6
		Q598	C-17
IC101	G-7	Q601	D-16
IC102	E-17	Q602	E-14
IC103	F-17	Q603	F-14
IC104	C-19	Q605	D-13
IC201	G-6	Q608	D-15
IC202	E-17	Q609	D-9
IC203	F-17	Q611	F-14
IC204	B-19	Q620	D-14
IC301	F-17	Q701	I-9
IC302	D-7	Q702	H-15
IC303	E-16	Q901	D-21
IC304	B-9	Q950	H-3
IC305	B-16	Q951	G-3
IC501	E-6	Q952	D-2
IC502	G-20	Q953	E-2
IC503	F-14	Q956	G-2
IC504	F-4		
IC601	C-8		
IC602	B-8		
IC603	C-14		
IC670	C-7		
IC671	F-9		
IC701	H-17		
IC901	B-3		
IC950	I-21		
IC951	I-22		
IC952	F-22		

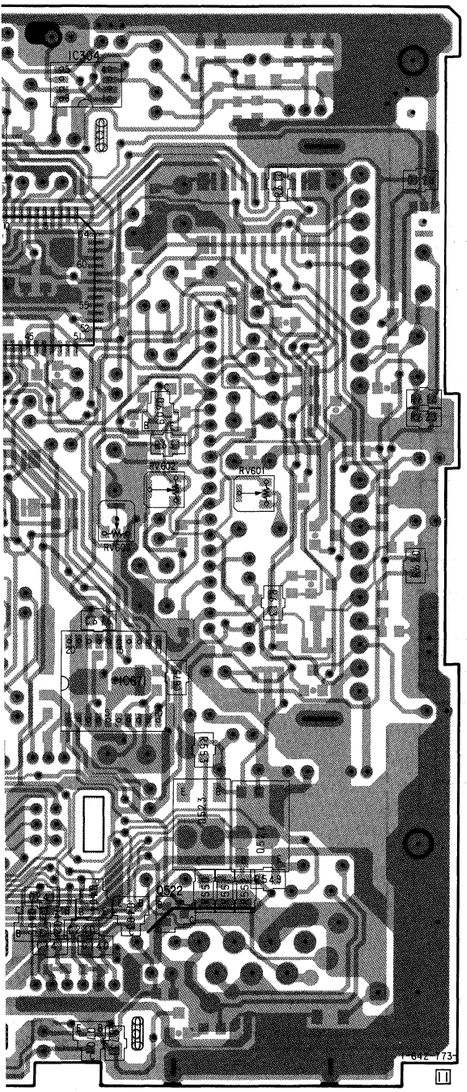
MAIN Section

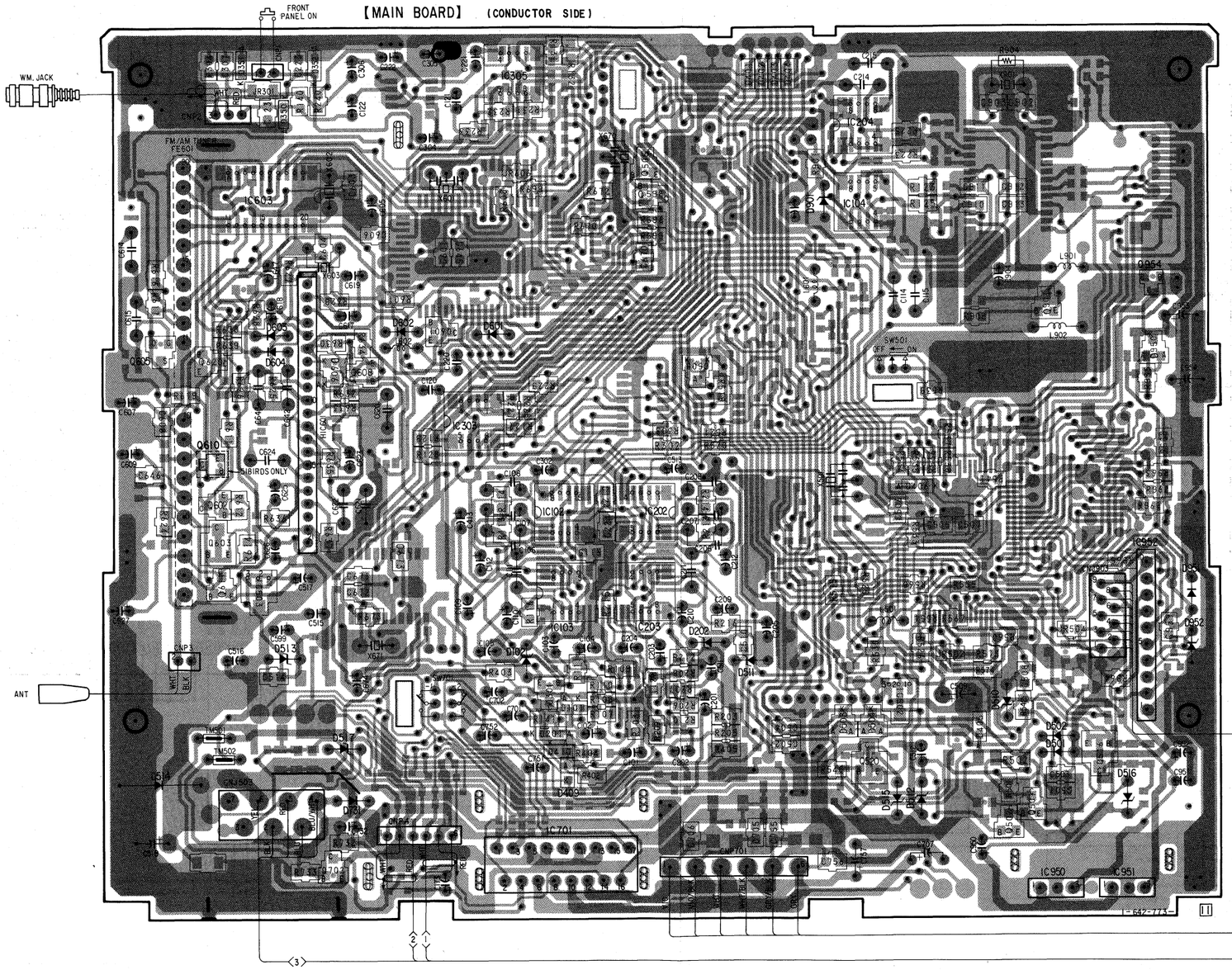
Note:

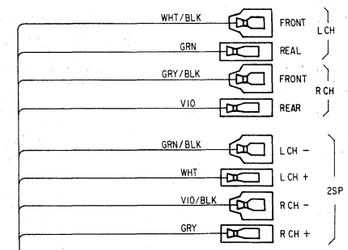
- ○——— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▒▒▒ : Pattern on the side which is seen.
- ▒▒▒ : Pattern of the rear side.

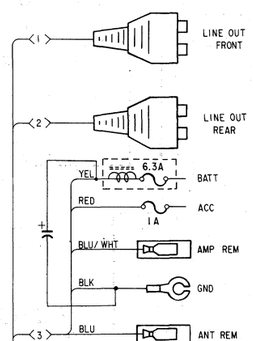


【MAIN BOARD】 (CONDUCTOR SIDE)



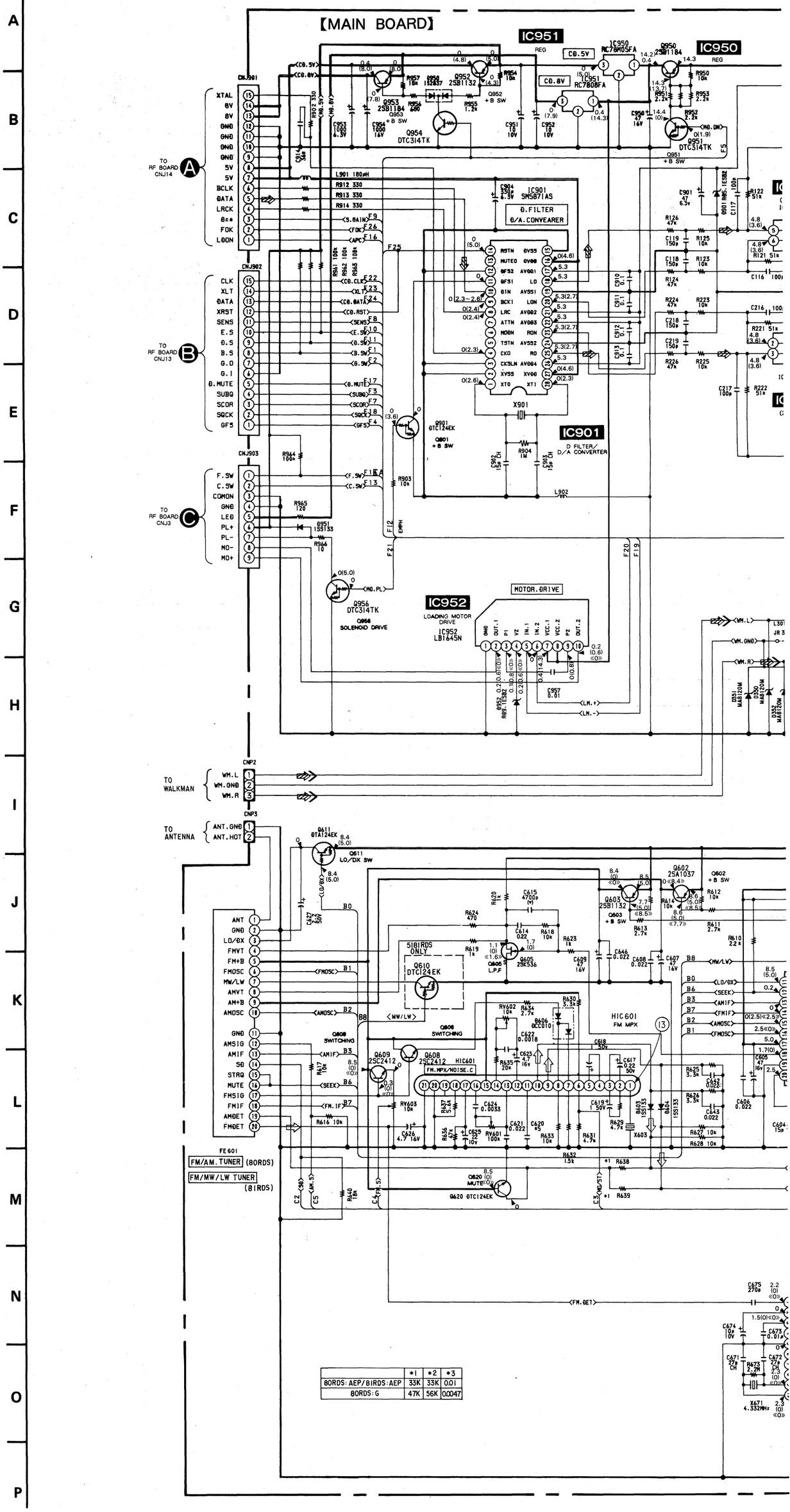




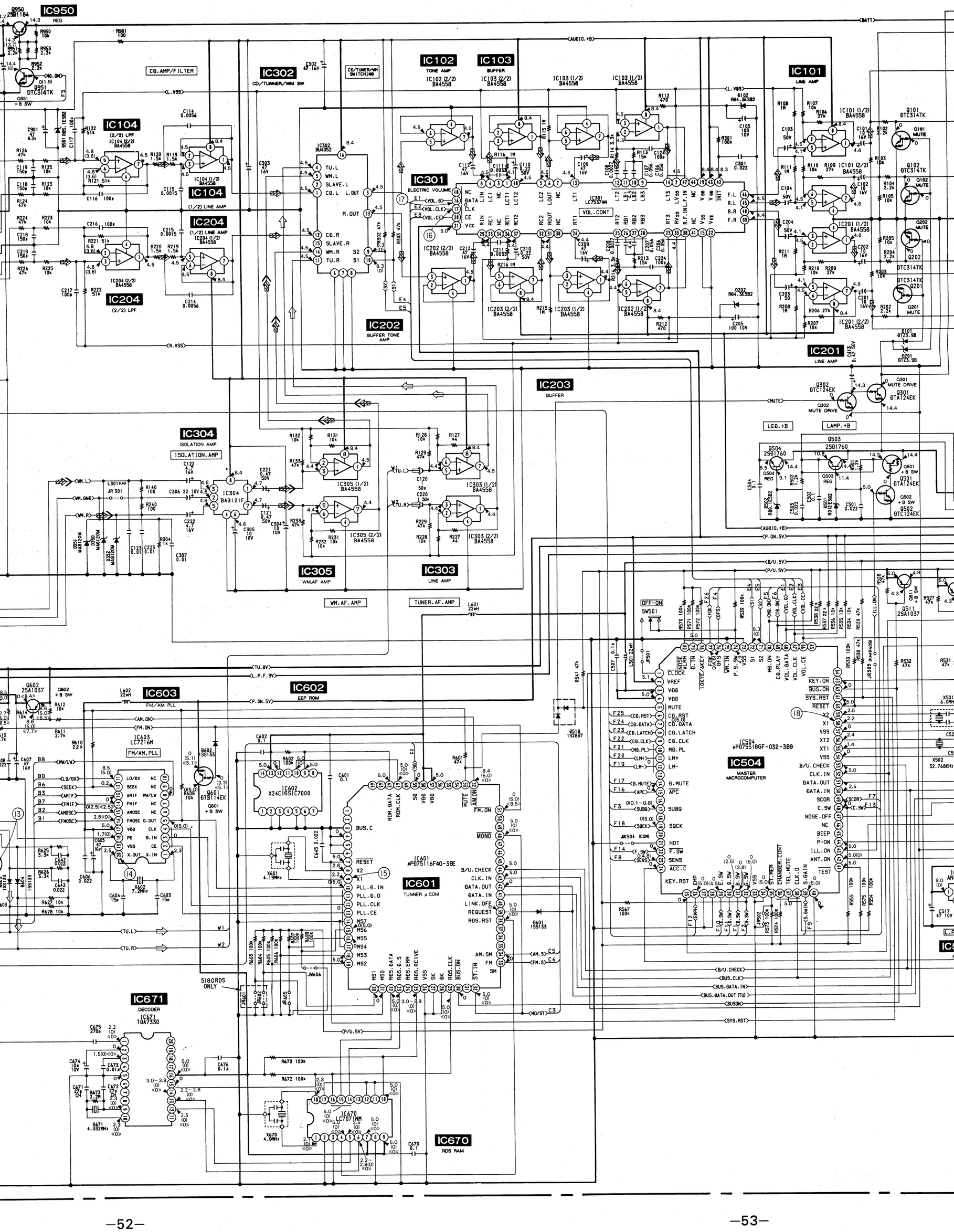


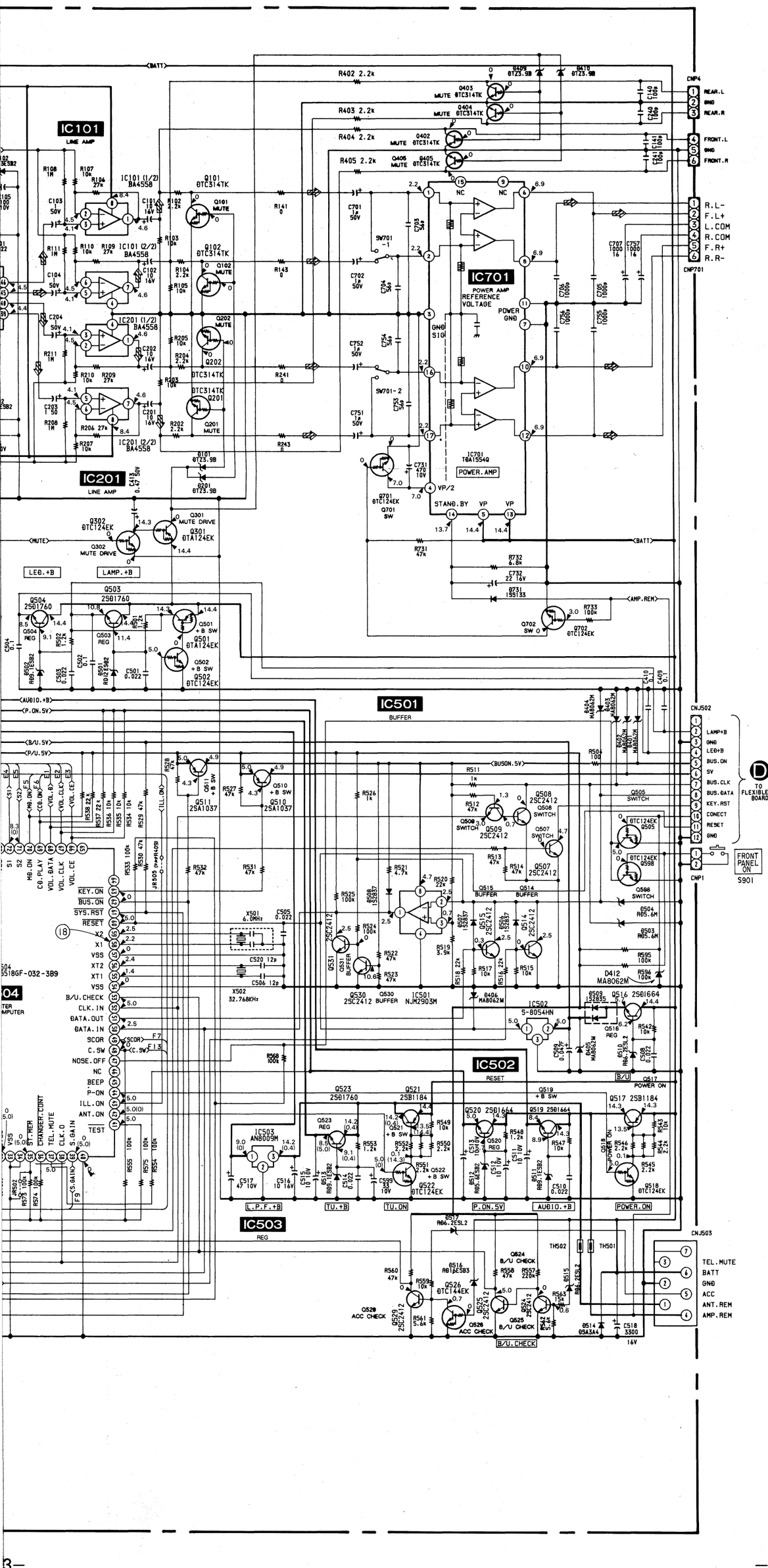
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/10 W or less unless otherwise specified.
- △ : internal component.
- ▬▬ : B + Line.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from external power voltage jack.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : FM or COMMON
  ( ) : CD
  〈 〉: AM
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to wavefroms.
- Signal path.
  ⇨ : FM
  ⇨ : CD
  ⇨ : AUX



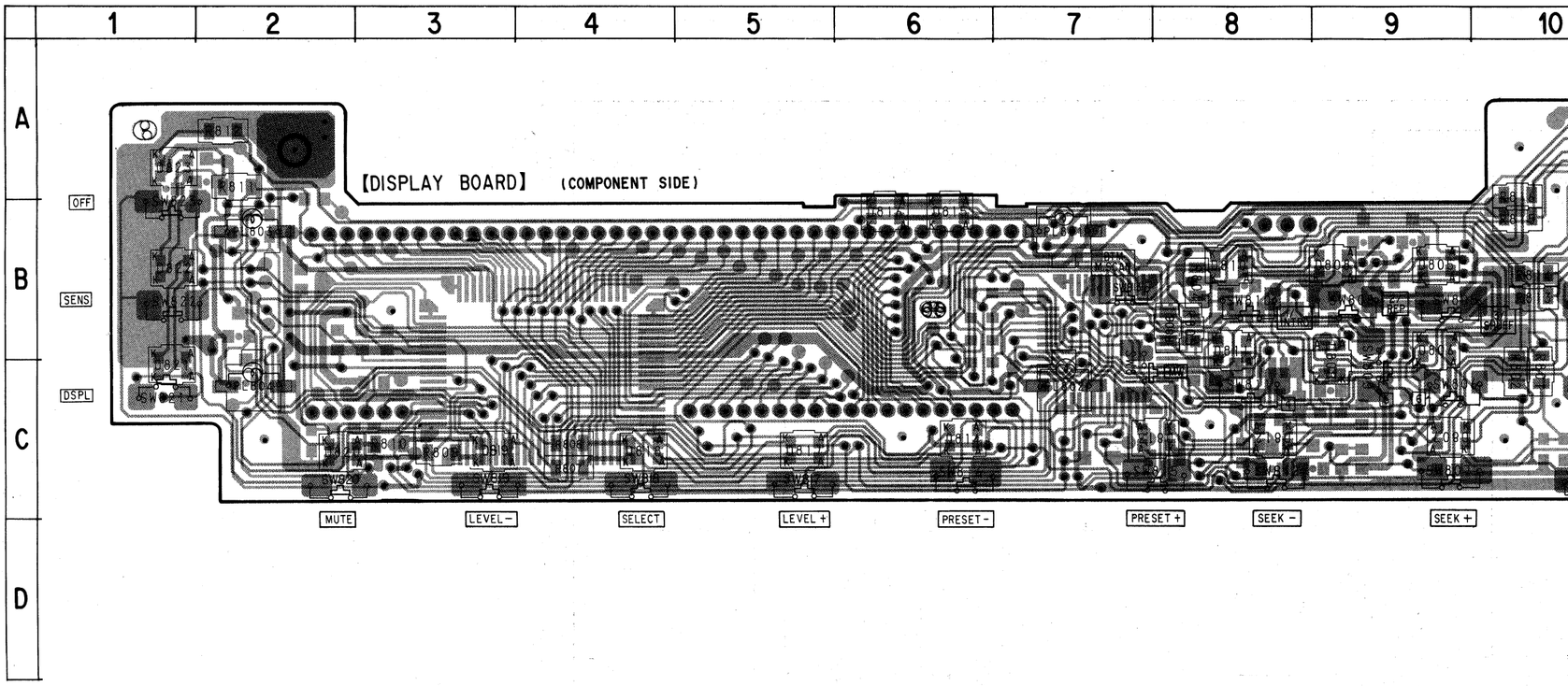
7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18




IC101
LINE AMP
IC201
LINE AMP
IC701
POWER AMP
REFERENCE VOLTAGE
POWER GND
GND SIG
POWER. AMP
IC501
BUFFER
IC502
RESET
IC503
REG
CNP4
REAR.L
GND
REAR.R
FRONT.L
GND
FRONT.R
CNP701
R.L-
F.L+
L.COM
R.COM
F.R+
R.R-
CNJ502
LAMP+B
GND
LEG+B
BUS.ON
5V
BUS.CLK
BUS.DATA
KEY.RST
CONECT
RESET
GND
TO FLEXIBLE(M) BOARD
CNP1
FRONT PANEL ON
S901
CNJ503
TEL.MUTE
BATT
GND
ACC
ANT.REM
AMP.REM
KEY.ON
BUS.ON
SYS.RST
RESET
X2
X1
VSS
XT2
XT1
VSS
B/U.CHECK
CLK.IN
DATA.OUT
DATA.IN
SCOR
C.SW
NOSE.OFF
NC
BEEP
P-ON
ILL.ON
ANT.ON
TEST
X501 6.0MHz
X502 32.768KHz
L.P.F.+B
TU.+B
TU.ON
P.ON.5V
AUDIO.+B
POWER.ON
B/U.CHECK
LEG.+B
LAMP.+B
MUTE
AUDIO.+B
P.ON.5V
B/U.5V
P/U.5V
BUSON.5V
BATT
AMP.REM

5-11. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM (DISPLAY Section)

• See page 59 for Waveforms.



• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D801	A-10	D836	C-15
D802	B-10	D837	C-15
D803	C-10	D838	C-16
D804	C-10	D839	B-17
D805	B-9	D840	B-19
D806	B-9	D841	B-19
D807	C-9	D842	B-19
D808	B-9	D843	C-19
D809	C-9	D844	C-23
D810	B-8	D846	B-23
D811	B-8		
D812	C-8	IC801	B-17
D813	C-7	IC802	B-18
D814	C-6	IC803	B-21
D815	B-6		
D816	B-6	Q801	C-17
D817	C-5	Q802	C-17
D818	C-4	Q803	C-16
D819	C-3	Q804	A-15
D820	C-2	Q805	B-17
D821	C-1	Q806	B-16
D822	B-1	Q807	B-16
D823	A-1	Q808	B-23
D833	B-16	Q809	C-23
D834	C-15	Q810	A-24
D835	C-15	Q811	A-24

DISPLAY section

Note on Printed Wiring Board:

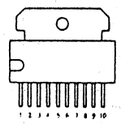
- ● : Through hole.
- : Jumper wire connected to the ground pattern on the component side.
- : Pattern on the side which is seen.
- : Pattern of the rear side.

Note on Schematic Diagram:

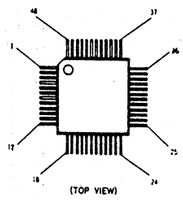
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/10 W or less unless otherwise specified.
- : B + Line.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from battery, accessory terminals.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD PLAY
- Circled numbers refer to wavefroms.

• Semiconductor Lead Layouts

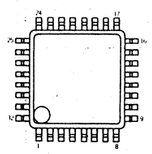
LB1645N



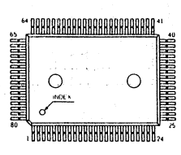
LC7537AN



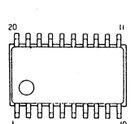
CXA1081Q



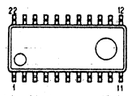
CXD1167Q
TC9240F
µPD75116GF-F14-3BE
µPD75118GF-022-3B9
X24C16SI



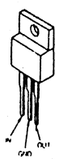
LC7216M



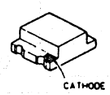
SM5840CS



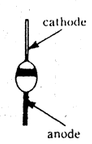
RC78M05FA
RC7808FA



CL-155Y/PG-CD

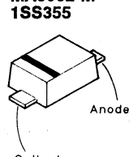


DSA3A4

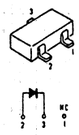


LN1251C

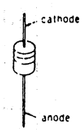
DTZ3.9B
MA8051-H
MA8062-M
1SS355



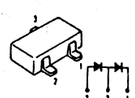
RD3.9M-B2
RD5.6M-B2
RD11M-B2



RD4.3ES-B2
RD5.1ES-B2
RD5.6ES-B2
RD6.2ES-L3
RD7.5ES-B1
RD9.1ES-B2
RD11ES-B2
RD16ES-B3
1SS119
11ES2



1SS226



TO MAIN BOARD CNJ502

【FLEXIBLE (M) BOARD】

【DISPLAY BOARD】 (CONDUCTOR SIDE)

EJECT

FM/AM (80RDS)

FM/MW/LW (81RDS)

AF/TA

SEEK +

CD

I-642-774-

11

SW824 RESET

I-643-451-

11

TO MAIN BOARD CNJ502

【DISPLAY BOARD】

NC	1
NC	2
NC	3
LAMP+B	4
GND	5
LED+B	6
BUS-ON	7
5V	8
CLK	9
DATA	10
KEY-RESET	11
CONNECT	12

CNP801

CNJ801

N C	1
LAMP +B	2
GND	3
LED +B	4
BUS.ON	5
5 V	6
BUS.CLK	7
BUS.DATA	8
KEY.RST	9
CONECT	10
RESET	11
GND	12

TO MAIN BOARD CNJ502

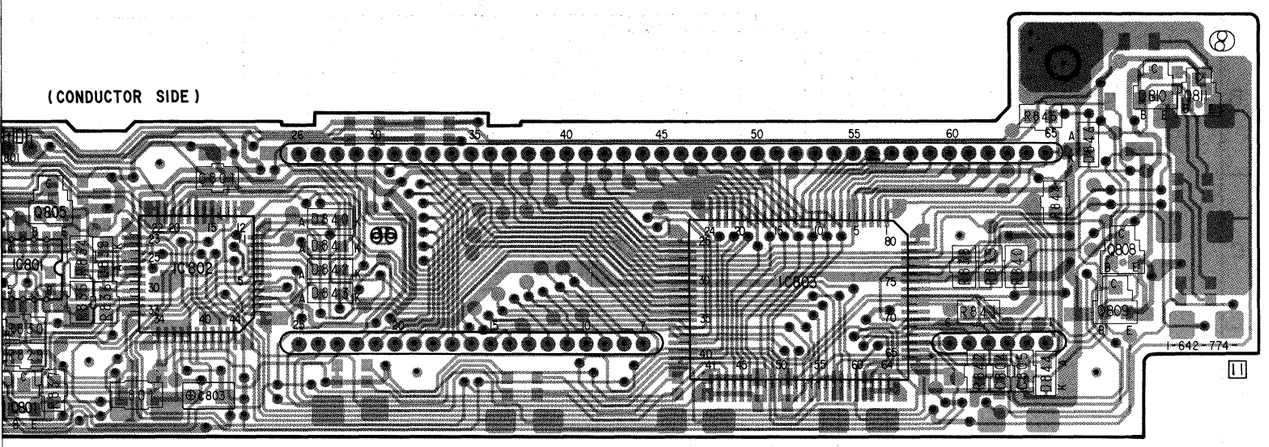
【FLEXIBLE (M) BOARD】

IC802 μPD75008GB-679-3B4 KEY MICRO COMPUTER

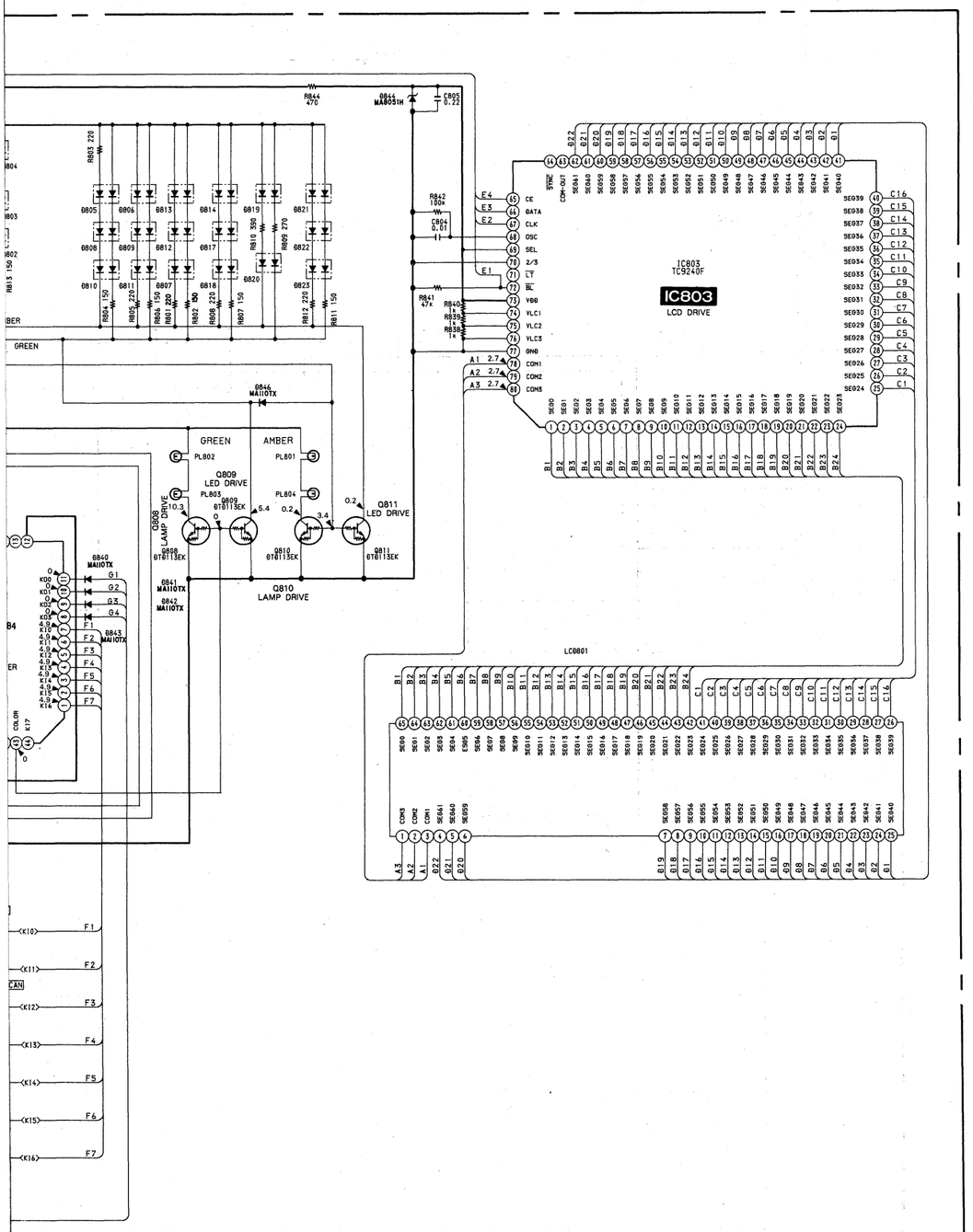
IC801 BUFFER

	*2
80RDS : AEP, G	FM/AM
81RDS : AEP	FM/MW/LW

17	18	19	20	21	22	23	24

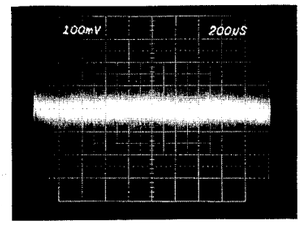


10	11	12	13	14	15	16

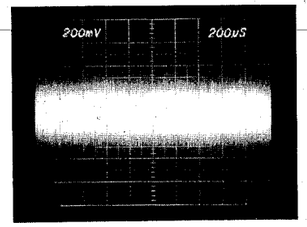


5-12. WAVEFORMS

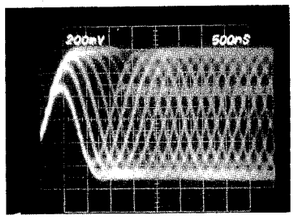
①



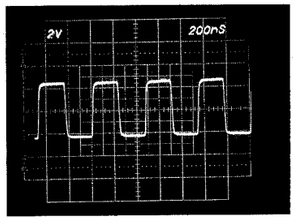
②



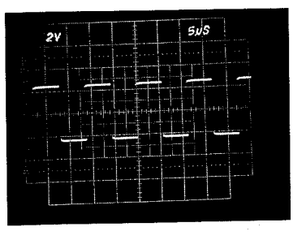
③



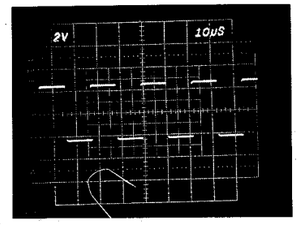
④



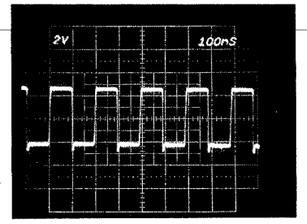
⑤



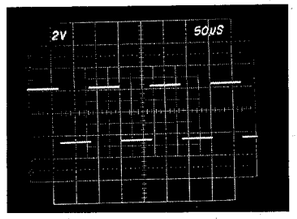
⑥



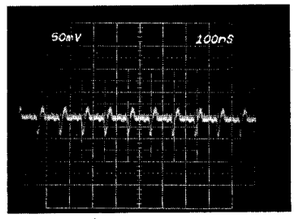
⑦



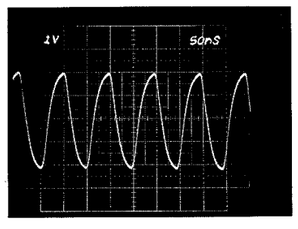
⑧



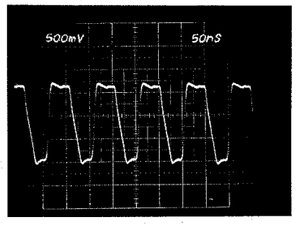
⑨



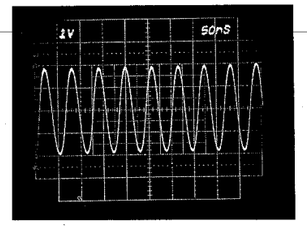
⑩



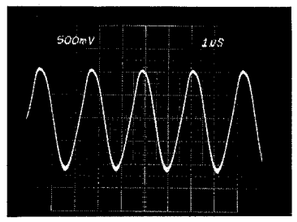
⑪



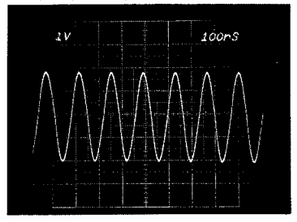
⑫



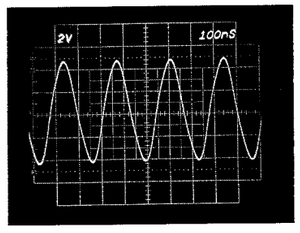
⑬



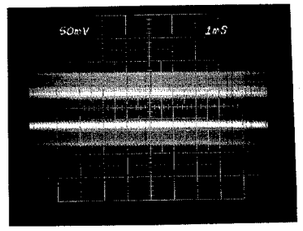
⑭



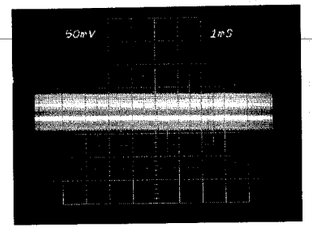
⑮



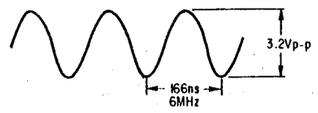
⑯



⑰

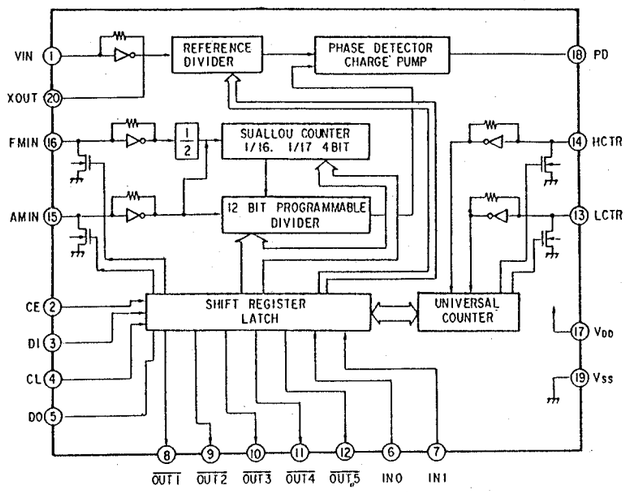


⑱

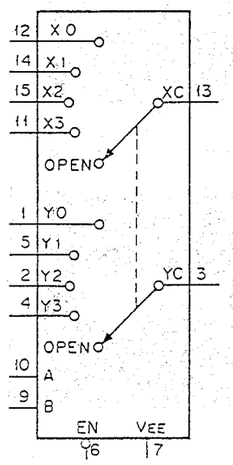


• IC Block Diagrams

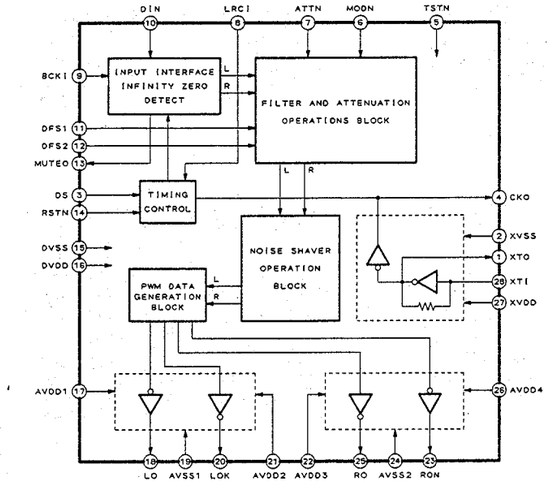
IC603 LC7216M



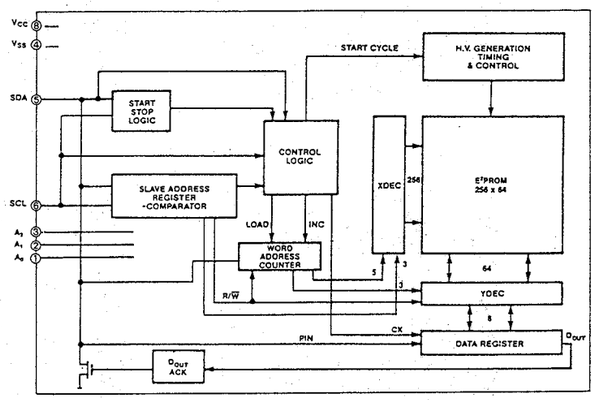
IC302 BU4052BF



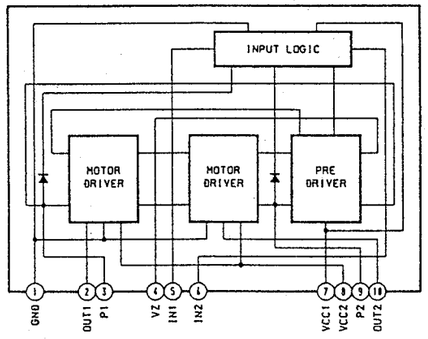
IC901 SM5871AS



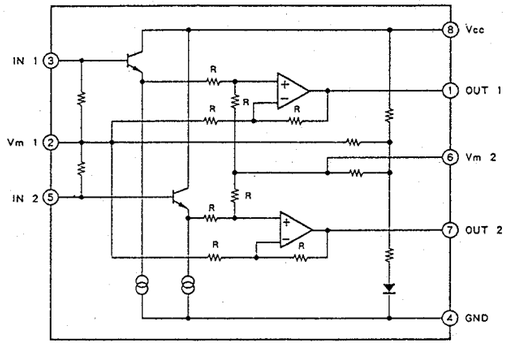
IC602 X24C16SI



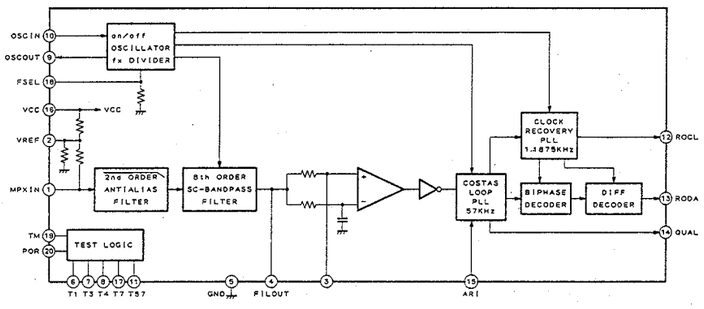
IC952 LB1645N



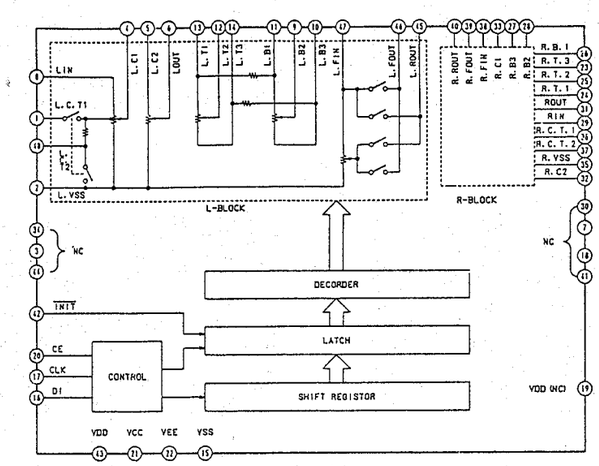
IC304 BA3121F



IC671 TDA7330



IC301 LC7537AN



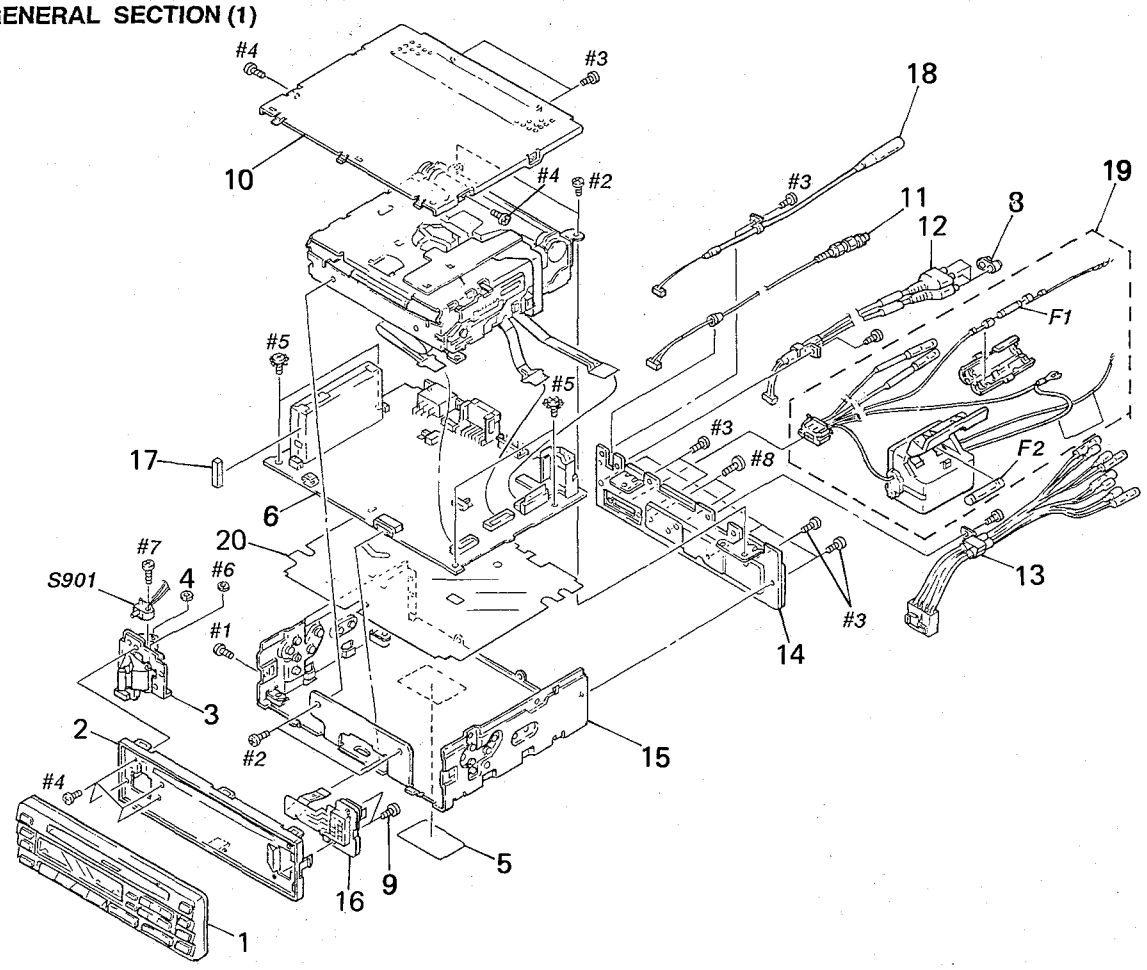
SECTION 6
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

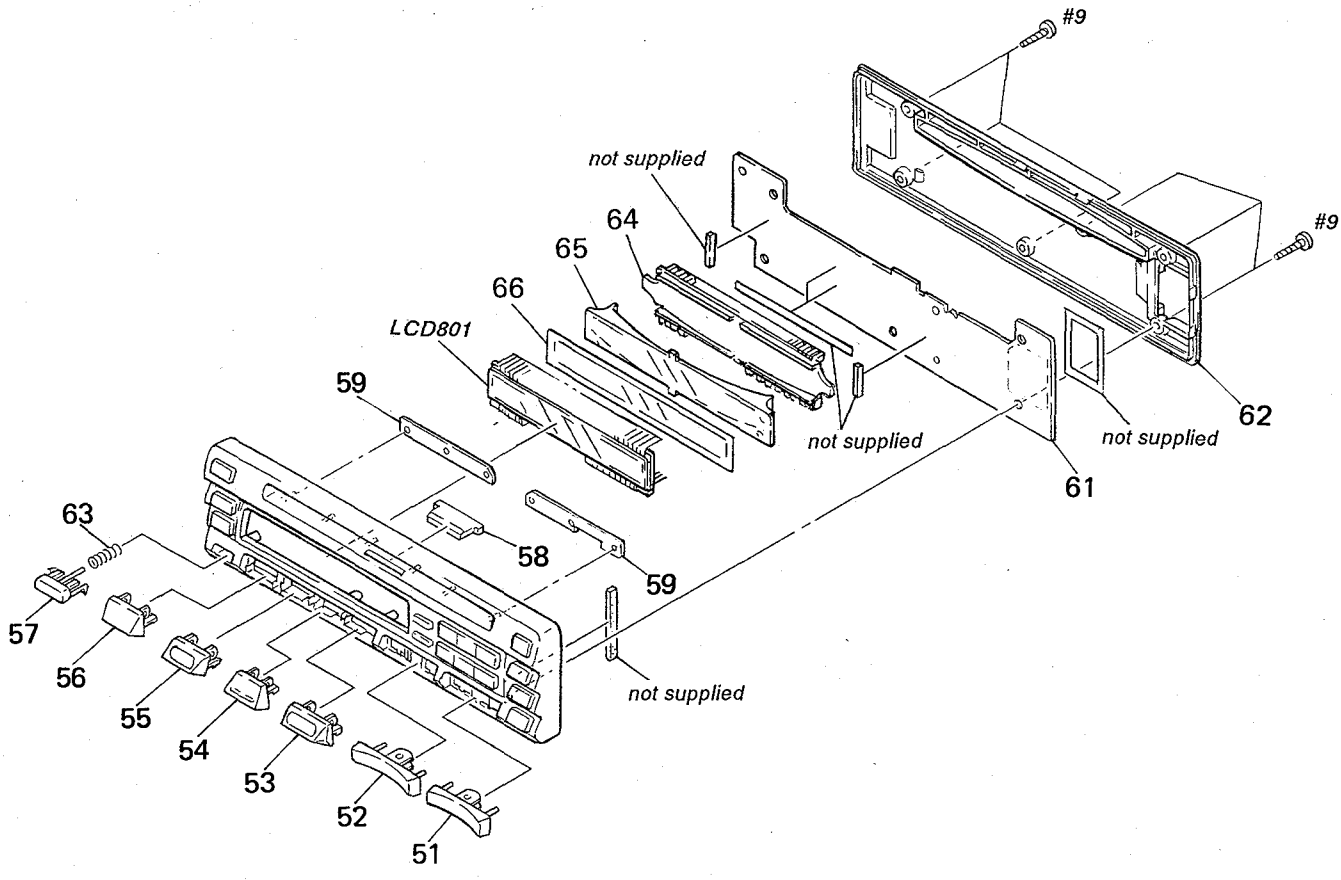
(1) GENERAL SECTION (1)



Ref. No.	Part No.	Description	Remark
1	X-3364-558-1	PANEL ASSY, FRONT (5180RDS:AEP, G)	
1	X-3364-561-1	PANEL ASSY, FRONT (5181RDS:AEP)	
* 2	X-3364-611-1	PANEL (SUB) ASSY	
3	X-3364-564-1	LOCK ASSY	
4	3-701-436-11	WASHER, STOPPER	
* 5	3-376-305-01	LABEL, MODEL NUMBER (5180RDS:AEP)	
* 5	3-376-306-01	LABEL, MODEL NUMBER (AEL) (5181RDS:AEP)	
* 5	3-376-307-01	LABEL, MODEL NUMBER (5180RDS:G)	
* 6	A-3273-845-A	MAIN BOARD (B), COMPLETE (5181RDS:AEP)	
* 6	A-3273-847-A	MAIN BOARD (B), COMPLETE (5180RDS:G)	
* 6	A-3273-848-A	MAIN BOARD (B), COMPLETE (5180RDS:AEP)	
8	3-339-410-01	COVER (2), PIN JACK	
9	4-947-204-11	SCREW TP M2X4	

Ref. No.	Part No.	Description	Remark
* 10	3-375-799-01	COVER	
11	1-690-485-11	CORD (WITH CONNECTOR)	
12	1-690-754-11	CORD (WITH CONNECTOR) (RCA)	
12	1-690-754-21	CORD (WITH CONNECTOR) (RCA)	
13	1-690-722-11	CORD (WITH CONNECTOR) (SP)	
* 14	X-3364-562-1	PANEL ASSY, BACK	
* 15	3-374-172-01	CHASSIS (MAIN)	
16	1-643-451-11	(M) FLEXIBLE BOARD	
17	9-911-845-XX	SPONGE	
18	1-574-339-11	CORD (WITH CONNECTOR)	
19	1-690-720-11	CORD (WITH CONNECTOR)	
20	3-379-285-01	SHEET, INSULATING	
S901	1-570-771-11	SWITCH	
⚠F1	1-532-414-11	FUSE (1A 125V)	
⚠F2	1-532-422-11	FUSE (6.3A 125V)	

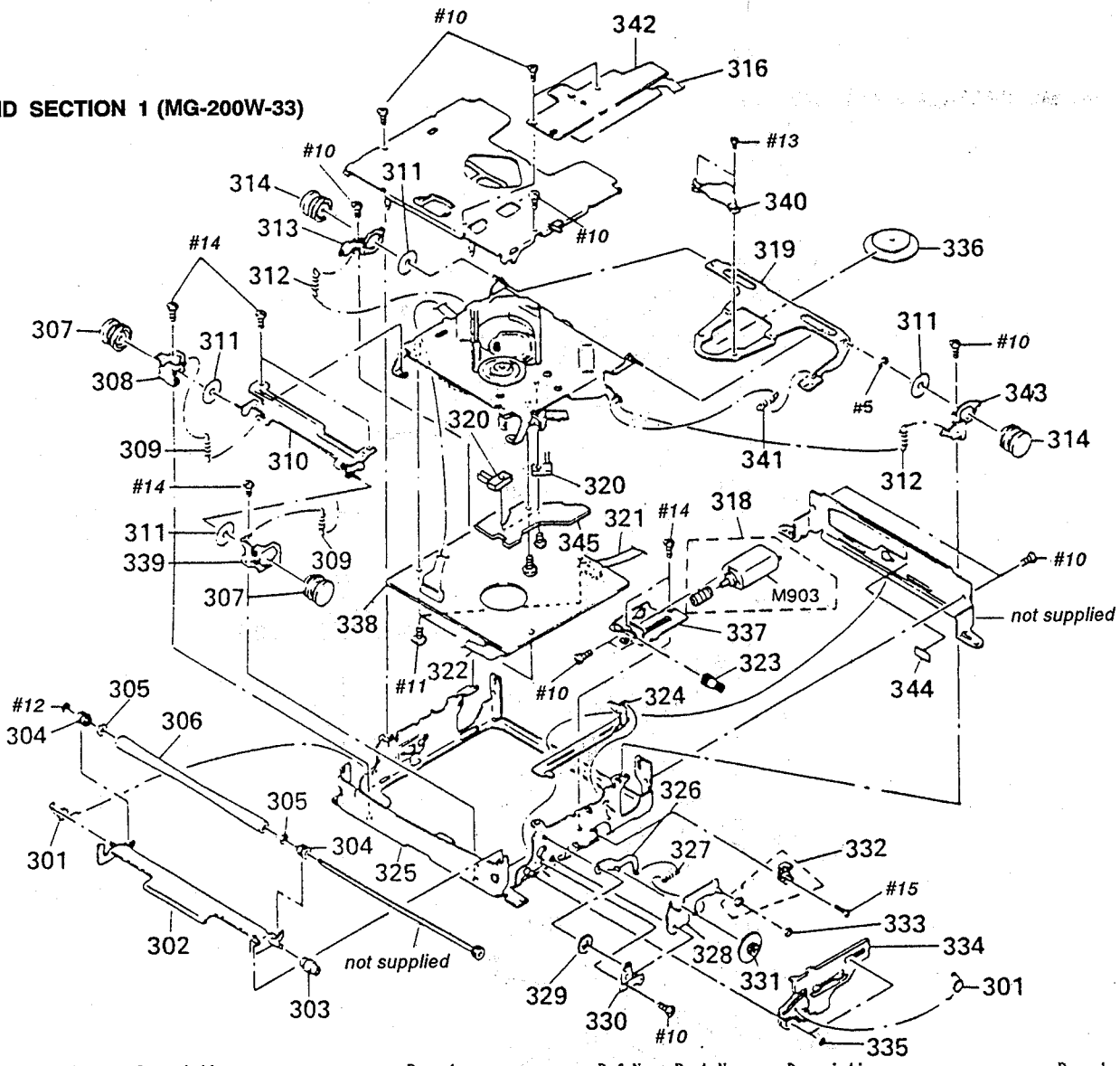
(2) GENERAL SECTION (2)



Ref. No.	Part No.	Description	Remark
51	3-375-804-01	BUTTON (SEEK)	
52	3-375-803-01	BUTTON (PRESET)	
53	3-375-809-01	BUTTON (LEVEL +)	
54	3-375-807-01	BUTTON (SELECT)	
55	3-375-806-01	BUTTON (LEVEL -)	
56	3-375-805-01	BUTTON (MUTE)	
57	3-375-810-01	BUTTON (RELEASE)	
58	3-375-817-01	PLATE (C), LIGHT GUIDE	
59	3-376-824-01	SHEET (DOOR F)	

Ref. No.	Part No.	Description	Remark
* 61	A-3222-369-A	DISPLAY BOARD, COMPLETE	
* 62	3-375-797-01	PANEL, FRONT BACK	
63	9-910-999-31	SPRING, COMPRESSION	
* 64	3-375-815-01	HOLDER (LCD)	
* 65	3-375-816-01	PLATE (LCD), LIGHT GUIDE	
66	3-379-284-01	SHEET (DIFFUSION)	
LCD801	1-809-561-21	DISPLAY PANEL, LIQUID CRYSTAL	

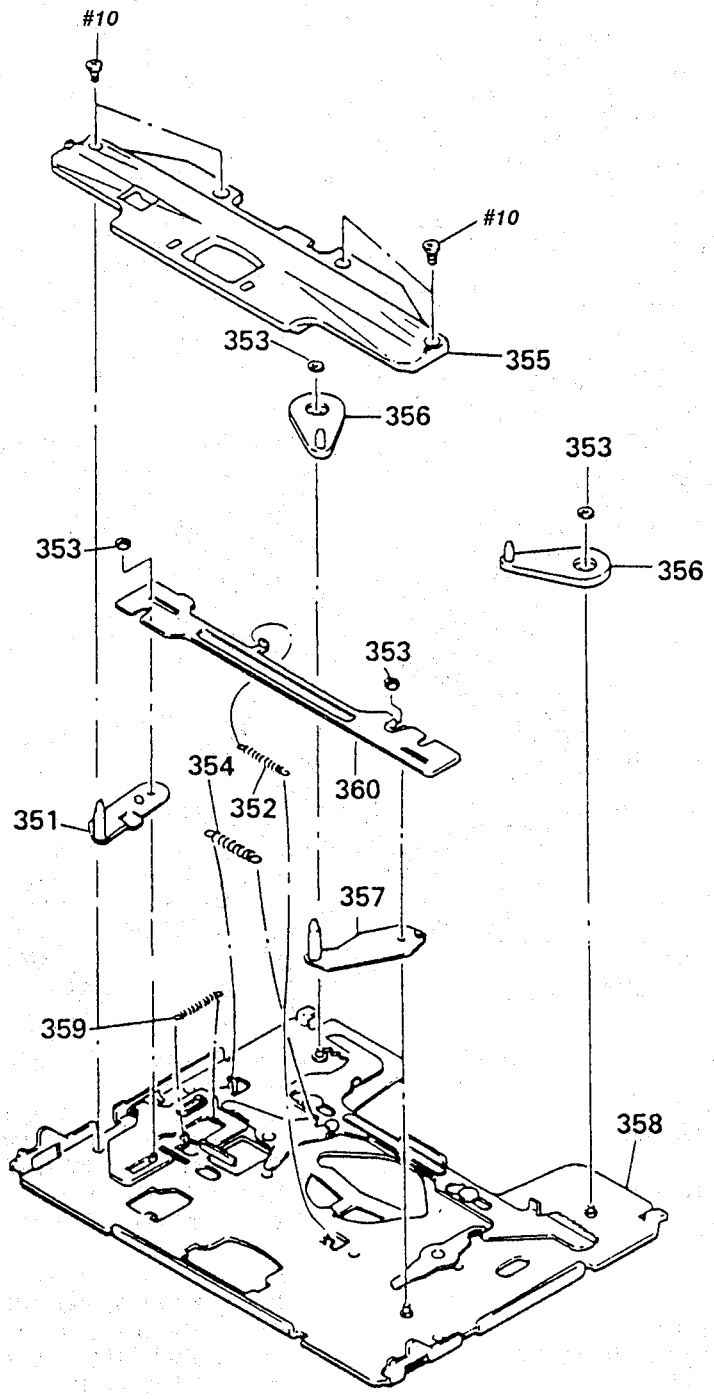
(3) MD SECTION 1 (MG-200W-33)



Ref. No.	Part No.	Description	Remark
301	3-351-437-01	SPRING (ROLLER)	
* 302	X-3351-422-1	BRACKET (ROLLER) ASSY	
303	3-351-495-01	SLEEVE (2)	
304	3-351-416-01	BEARING (ROLLER SHAFT)	
305	3-701-438-11	WASHER, 2.5	
306	3-323-231-11	ROLLER (LOWER)	
307	3-364-310-01	DAMPER (F)	
* 308	3-351-493-01	BRACKET (DUMPER B)	
309	3-351-444-01	SPRING (FLOATING A, B), TENSION	
* 310	X-3351-423-1	BRACKET (F) ASSY	
311	3-323-263-01	WASHER, TEFLON	
312	3-351-445-01	SPRING (FLOATING C, D), TENSION	
* 313	3-351-411-01	BRACKET (DAMPER D)	
314	3-330-929-11	DAMPER (S), HYPER	
316	1-634-332-11	(A) FLEXIBLE BOARD	
318	A-3249-535-A	GEAR (A) ASSY	
* 319	3-351-453-01	ARM, CHUCKING	
320	1-554-938-11	SWITCH, LEAF	
321	1-634-333-11	(B) FLEXIBLE BOARD	
322	1-634-334-11	(C) FLEXIBLE BOARD	
323	3-351-498-01	GEAR (B, WORM WHEEL)	
* 324	X-3351-418-1	LEVER (CH RELEASE) ASSY	

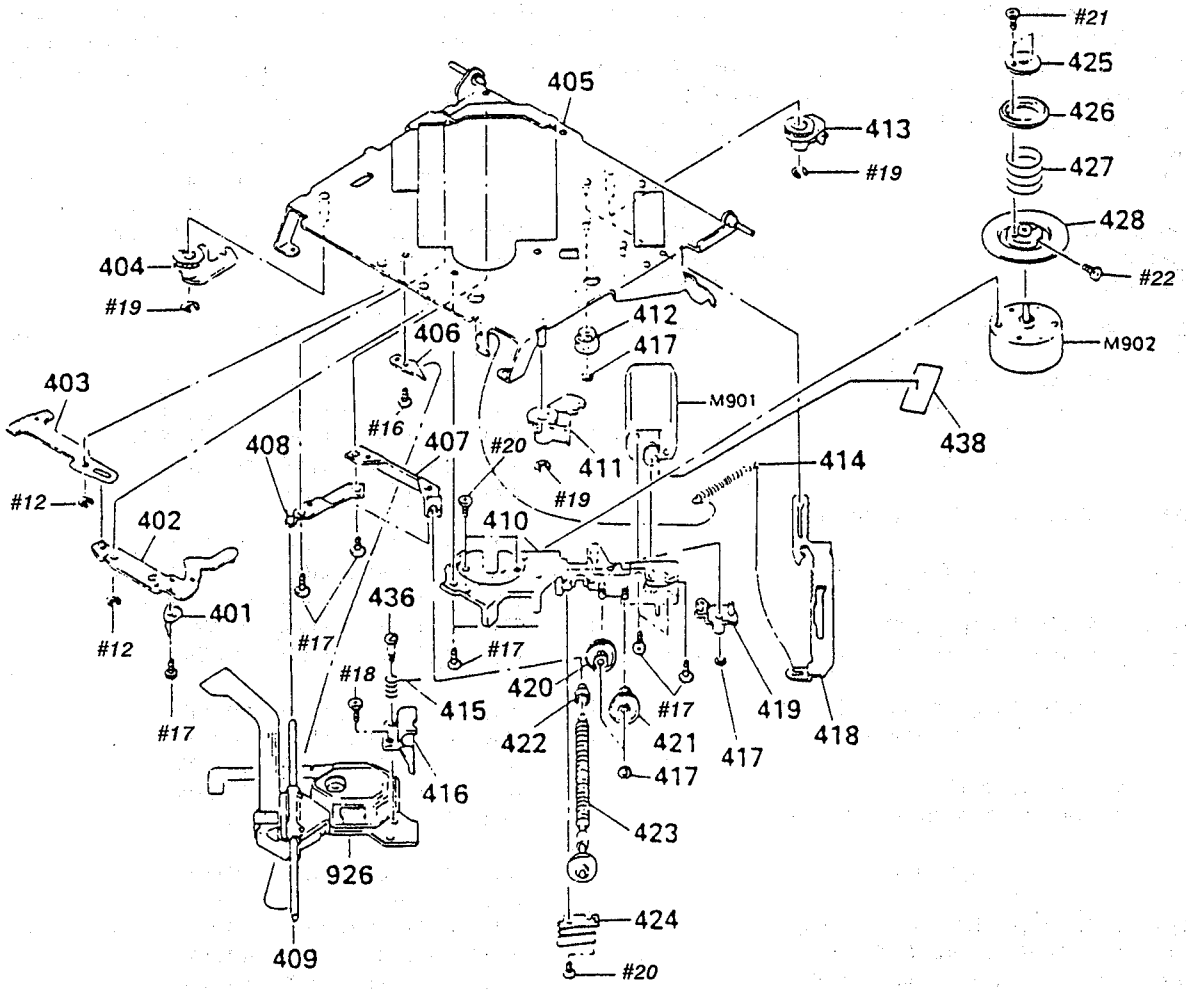
Ref. No.	Part No.	Description	Remark
* 325	X-3351-417-2	CHASSIS (MAIN) ASSY	
* 326	X-3351-420-1	LEVER (GEAR C) ASSY	
327	3-351-463-01	SPRING (SW LEVER 2), TENSION	
* 328	X-3351-421-1	LEVER (SW) ASSY	
329	3-351-414-01	GEAR (C)	
* 330	3-351-482-01	RETAINER (SIDE GEAR 2)	
331	3-351-438-01	GEAR, CAM	
332	1-454-461-11	SOLENOID, PLUNGER	
333	3-315-384-11	WASHER, STOPPER	
334	3-351-456-01	LEVER (L, E)	
335	3-578-224-00	WASHER	
336	3-348-558-01	PLATE (F), CHUCK	
* 337	X-3351-419-1	BRACKET (M) ASSY	
* 338	A-3279-978-A	RF BOARD, COMPLETE	
* 339	3-351-492-01	BRACKET (DUMPER A)	
340	3-342-625-01	RETAINER (S2), THRUST	
341	3-351-443-01	SPRING (CHUCKING), TENSION	
* 342	1-634-331-11	LED BOARD	
* 343	3-351-494-01	BRACKET (DUMPER C)	
* 344	3-351-464-01	SHEET (SM), INSULATING	
* 345	1-634-330-11	SENSOR BOARD	
M903	1-541-560-11	MOTOR, DC	

(4) MD SECTION 2 (MG-200W-33)



Ref. No.	Part No.	Description	Remark
* 351	X-3351-426-1	LEVER (D DETECTION R2) ASSY	
352	3-351-447-02	SPRING (JOINT F), TENSION	
353	3-578-224-00	WASHER	
354	3-351-446-01	SPRING (JOINT R), TENSION	
355	3-351-496-01	GUIDE (DISK 2)	
356	3-351-432-01	GEAR (DS)	
* 357	X-3351-425-1	LEVER (D DETECTION L2) ASSY	
* 358	X-3351-424-1	CHASSIS (T2) ASSY	
359	3-351-448-01	SPRING (LOCK LEVER), TENSION	
* 360	3-351-489-02	JOINT (F2)	

(5) MD SECTION 3 (MG-200W-33)



Ref. No.	Part No.	Description	Remark
* 401	2-643-407-01	PLATE, SWITCH	
* 402	X-2641-534-1	LEVER (A) ASSY, LOCK	
* 403	2-641-582-01	LEVER (B), LOCK	
404	2-643-414-02	GEAR (B), LOCK	
* 405	X-2641-536-2	CHASSIS ASSY, MAIN	
406	2-643-402-01	RETAINER (B), SHAFT	
407	2-643-403-01	RETAINER, FEED SCREW	
408	2-643-401-01	RETAINER (A), SHAFT	
409	2-640-632-01	SHAFT, GUIDE	
* 410	X-2641-535-2	CHASSIS ASSY, SUB	
411	2-643-413-02	GEAR (A), LOCK	
412	2-643-405-01	WHEEL, WORM	
413	2-641-599-02	GEAR (C), GEAR	
414	2-641-595-02	SPRING, TENSION	
415	2-643-420-01	SPRING	
416	2-643-412-02	NUT, FEED	
417	3-321-813-01	WASHER, COTTER POLYETHYLENE	

Ref. No.	Part No.	Description	Remark
* 418	2-641-583-02	LEVER (C), LOCK	
419	2-643-406-02	LEVER, SELECTION	
420	2-643-410-01	GEAR (E)	
421	2-643-409-01	GEAR (D)	
422	2-643-408-02	RETAINER, THRUST	
423	A-4910-184-B	SCREW ASSY, FEED	
424	2-643-404-01	SPRING	
425	2-640-650-01	STOPPER, RING	
426	2-643-418-01	RING, CENTER	
427	2-640-617-02	SPRING, COMPRESSION	
428	X-2641-541-1	TURNTABLE ASSY	
436	2-643-423-01	SCREW, SP	
438	3-351-469-01	SHEET, MOTOR	
⚠926	8-848-224-11	DEVICE. OPTICAL KSS-320B	
M901	A-4910-183-A	MOTOR ASSY, SL (SLED)	
M902	1-541-448-41	MOTOR (SPINDLE)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
ELECTRICAL PARTS LIST

FLEXIBLE **DISPLAY**

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

- Abbreviations
  AEP:AEP Model
  G:Germany Model

Ref. No.	Part No.	Description			Remark
	1-643-451-11	(M) FLEXIBLE BOARD			
		**********			
		< JACK >			
CNJ801	1-691-558-21	SOCKET, CONNECTOR 12P			
		< SWITCH >			
SW824	1-554-371-51	SWITCH, TACT			
**********					
*	A-3222-369-A	DISPLAY BOARD, COMPLETE			
		**********			
*	3-375-815-01	HOLDER (LCD)			
*	3-375-816-01	PLATE (LCD), LIGHT GUIDE			
		< CAPACITOR >			
C801	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C803	1-135-149-21	TANTALUM CHIP	2.2uF	20% 10V	
C804	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C805	1-164-222-11	CERAMIC CHIP	0.22uF	25V	
		< CONNECTOR >			
* CNP801	1-691-557-11	PIN, CONNECTOR 12P			
		< DIODE >			
D801	8-719-987-45	DIODE	CL-155Y/PG-CD		
D802	8-719-987-45	DIODE	CL-155Y/PG-CD		
D803	8-719-987-45	DIODE	CL-155Y/PG-CD		
D804	8-719-987-45	DIODE	CL-155Y/PG-CD		
D805	8-719-987-45	DIODE	CL-155Y/PG-CD		
D806	8-719-987-45	DIODE	CL-155Y/PG-CD		
D807	8-719-987-45	DIODE	CL-155Y/PG-CD		
D808	8-719-987-45	DIODE	CL-155Y/PG-CD		
D809	8-719-987-45	DIODE	CL-155Y/PG-CD		
D810	8-719-987-45	DIODE	CL-155Y/PG-CD		
D811	8-719-987-45	DIODE	CL-155Y/PG-CD		
D812	8-719-987-45	DIODE	CL-155Y/PG-CD		
D813	8-719-987-45	DIODE	CL-155Y/PG-CD		
D814	8-719-987-45	DIODE	CL-155Y/PG-CD		
D815	8-719-987-45	DIODE	CL-155Y/PG-CD		
D816	8-719-987-45	DIODE	CL-155Y/PG-CD		
D817	8-719-987-45	DIODE	CL-155Y/PG-CD		
D818	8-719-987-45	DIODE	CL-155Y/PG-CD		
D819	8-719-987-45	DIODE	CL-155Y/PG-CD		
D820	8-719-987-45	DIODE	CL-155Y/PG-CD		
D821	8-719-987-45	DIODE	CL-155Y/PG-CD		
D822	8-719-987-45	DIODE	CL-155Y/PG-CD		
D823	8-719-987-45	DIODE	CL-155Y/PG-CD		
D833	8-719-422-65	DIODE	MA8062M		
D834	8-719-422-65	DIODE	MA8062M		
D835	8-719-422-65	DIODE	MA8062M		
D836	8-719-404-47	DIODE	MA110-TX		
D837	8-719-404-47	DIODE	MA110-TX		
D838	8-719-404-47	DIODE	MA110-TX		
D839	8-719-404-47	DIODE	MA110-TX		
D840	8-719-404-47	DIODE	MA110-TX		
D841	8-719-404-47	DIODE	MA110-TX		
D842	8-719-404-47	DIODE	MA110-TX		
D843	8-719-404-47	DIODE	MA110-TX		
D844	8-719-422-43	DIODE	MA8051H		
D846	8-719-404-47	DIODE	MA110-TX		
		< IC >			
IC801	8-759-981-65	IC	LM2903M		
IC802	8-759-067-68	IC	uPD75008GB-679-3B4		
IC803	8-759-246-16	IC	TC9240F		
		< COIL >			
L801	1-410-204-31	INDUCTOR CHIP	10uH		
		< LIQUID CRYSTAL DISPLAY >			
LCD801	1-809-561-21	DISPLAY PANEL, LIQUID CRYSTAL			
		< PILOT LAMP >			
PL801	1-518-677-21	LAMP, PILOT			
PL802	1-518-701-21	LAMP, PILOT			
PL803	1-518-701-21	LAMP, PILOT			
PL804	1-518-677-21	LAMP, PILOT			
		< TRANSISTOR >			
Q801	8-729-901-05	TRANSISTOR	DTA124EK		
Q802	8-729-920-74	TRANSISTOR	2SC2412K-QR		
Q805	8-729-900-53	TRANSISTOR	DTC114EK		
Q806	8-729-900-53	TRANSISTOR	DTC114EK		

Ref. No.	Part No.	Description			Remark
Q809	8-729-904-66	TRANSISTOR DTD113EK			
Q810	8-729-904-66	TRANSISTOR DTD113EK			
Q811	8-729-904-66	TRANSISTOR DTD113EK			
		< RESISTOR >			
R801	1-216-182-00	METAL GLAZE	220	5%	1/8W
R802	1-216-178-00	METAL GLAZE	150	5%	1/8W
R803	1-216-182-00	METAL CHIP	220	5%	1/8W
R804	1-216-178-00	METAL GLAZE	150	5%	1/8W
R805	1-216-182-00	METAL GLAZE	220	5%	1/8W
R806	1-216-178-00	METAL GLAZE	150	5%	1/8W
R807	1-216-178-00	METAL GLAZE	150	5%	1/8W
R808	1-216-182-00	METAL GLAZE	220	5%	1/8W
R809	1-216-184-00	METAL GLAZE	270	5%	1/8W
R810	1-216-188-00	METAL GLAZE	390	5%	1/8W
R811	1-216-178-00	METAL GLAZE	150	5%	1/8W
R812	1-216-182-00	METAL GLAZE	220	5%	1/8W
R813	1-216-178-00	METAL GLAZE	150	5%	1/8W
R814	1-216-182-00	METAL GLAZE	220	5%	1/8W
R815	1-216-180-00	METAL GLAZE	180	5%	1/8W
R816	1-216-184-00	METAL GLAZE	270	5%	1/8W
R826	1-216-089-00	METAL CHIP	47K	5%	1/10W
R827	1-216-089-00	METAL CHIP	47K	5%	1/10W
R828	1-216-081-00	METAL CHIP	22K	5%	1/10W
R829	1-216-105-00	METAL CHIP	220K	5%	1/10W
R830	1-216-081-00	METAL CHIP	22K	5%	1/10W
R831	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R832	1-216-073-00	METAL CHIP	10K	5%	1/10W
R833	1-216-105-00	METAL CHIP	220K	5%	1/10W
R834	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R835	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R836	1-216-081-00	METAL CHIP	22K	5%	1/10W
R837	1-216-073-00	METAL CHIP	10K	5%	1/10W
R838	1-216-049-00	METAL CHIP	1K	5%	1/10W
R839	1-216-049-00	METAL CHIP	1K	5%	1/10W
R840	1-216-049-00	METAL CHIP	1K	5%	1/10W
R841	1-216-089-00	METAL CHIP	47K	5%	1/10W
R842	1-216-097-00	METAL CHIP	100K	5%	1/10W
R844	1-216-041-00	METAL CHIP	470	5%	1/10W
R845	1-216-049-00	METAL CHIP	1K	5%	1/10W
		< SWITCH >			
S801	1-692-037-11	SWITCH, KEY BOARD (⏏)			
S802	1-692-037-11	SWITCH, KEY BOARD (FM/AM)			(5180RDS:AEP, G)
S802	1-692-037-11	SWITCH, KEY BOARD (FM/MW/LW)			(5181RDS:AEP)
S803	1-692-037-11	SWITCH, KEY BOARD (AF/TA)			
S804	1-692-037-11	SWITCH, KEY BOARD (CD)			

Ref. No.	Part No.	Description	Remark
S805	1-692-037-11	SWITCH, KEY BOARD (3/SHUF)	
S806	1-692-037-11	SWITCH, KEY BOARD (6)	
S807	1-692-037-11	SWITCH, KEY BOARD (SEEK +)	
S808	1-692-037-11	SWITCH, KEY BOARD (2/REP)	
S809	1-692-037-11	SWITCH, KEY BOARD (5)	
S810	1-692-037-11	SWITCH, KEY BOARD (1/INTRO)	
S811	1-692-037-11	SWITCH, KEY BOARD (4)	
S812	1-692-037-11	SWITCH, KEY BOARD (SEEK -)	
S813	1-692-037-11	SWITCH, KEY BOARD (BTM/M.SCAN)	
S814	1-692-037-11	SWITCH, KEY BOARD (WALKMAN)	
S815	1-692-037-11	SWITCH, KEY BOARD (PRESET +)	
S816	1-692-037-11	SWITCH, KEY BOARD (PRESET -)	
S817	1-692-037-11	SWITCH, KEY BOARD (LEVEL +)	
S818	1-692-037-11	SWITCH, KEY BOARD (SEL)	
S819	1-692-037-11	SWITCH, KEY BOARD (LEVEL -)	
S820	1-692-037-11	SWITCH, KEY BOARD (MUTE)	
S821	1-692-037-11	SWITCH, KEY BOARD (DSPL)	
S822	1-692-037-11	SWITCH, KEY BOARD (LOUD/SENS)	
S823	1-692-037-11	SWITCH, KEY BOARD (OFF)	
		< VIBRATOR >	
X801	1-567-775-11	VIBRATOR, CERAMIC (4.19MHz)	

****

*	1-634-331-11	LED BOARD	
		**********	
	1-634-332-11	(A) FLEXIBLE BOARD	
*	3-355-252-01	SHEET (MD), INSULATING	
		< DIODE >	
D80	8-719-404-19	DIODE LN1251C	
D81	8-719-404-19	DIODE LN1251C	
D82	8-719-404-19	DIODE LN1251C	
		< SWITCH >	
SW80	1-571-754-11	SWITCH, PUSH (1 KEY)	
SW81	1-571-754-11	SWITCH, PUSH (1 KEY)	

****

MAIN

Ref. No.	Part No.	Description			Remark
*	A-3273-845-A	MAIN BOARD (B), COMPLETE (5181RDS:AEP)			
		**********			
*	A-3273-847-A	MAIN BOARD (B), COMPLETE (5180RDS:G)			
		**********			
*	A-3273-848-A	MAIN BOARD (B), COMPLETE (5180RDS:AEP)			
		**********			
		< CAPACITOR >			
C101	1-126-157-11	ELECT	10uF	20%	16V
C102	1-126-157-11	ELECT	10uF	20%	16V
C103	1-126-301-11	ELECT	1uF	20%	50V
C104	1-126-301-11	ELECT	1uF	20%	50V
C105	1-124-584-00	ELECT	100uF	20%	10V
C106	1-136-162-00	FILM	0.056uF	5%	50V
C107	1-136-162-00	FILM	0.056uF	5%	50V
C108	1-130-476-00	MYLAR	0.0027uF	5%	50V
C109	1-124-589-11	ELECT	47uF	20%	16V
C110	1-124-464-11	ELECT	0.22uF	20%	50V
C111	1-130-477-00	MYLAR	0.0033uF	5%	50V
C112	1-124-589-11	ELECT	47uF	20%	16V
C114	1-130-480-00	MYLAR	0.0056uF	5%	50V
C115	1-130-473-00	MYLAR	0.0015uF	5%	50V
C116	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C117	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C118	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C119	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C120	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C121	1-126-579-00	ELECT	0.47uF	20%	50V
C122	1-126-288-11	ELECT	4.7uF	20%	16V
C123	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C124	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C140	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C141	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C201	1-126-157-11	ELECT	10uF	20%	16V
C202	1-126-157-11	ELECT	10uF	20%	16V
C203	1-126-301-11	ELECT	1uF	20%	50V
C204	1-126-301-11	ELECT	1uF	20%	50V
C205	1-124-584-00	ELECT	100uF	20%	10V
C206	1-136-162-00	FILM	0.056uF	5%	50V
C207	1-136-162-00	FILM	0.056uF	5%	50V
C208	1-130-476-00	MYLAR	0.0027uF	5%	50V
C209	1-124-589-11	ELECT	47uF	20%	16V
C210	1-124-464-11	ELECT	0.22uF	20%	50V
C211	1-130-477-00	MYLAR	0.0033uF	5%	50V
C212	1-124-589-11	ELECT	47uF	20%	16V
C214	1-130-480-00	MYLAR	0.0056uF	5%	50V
C215	1-130-473-00	MYLAR	0.0015uF	5%	50V
C216	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C217	1-163-117-00	CERAMIC CHIP	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
C218	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C219	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C220	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C221	1-126-579-61	ELECT	0.47uF	20%	50V
C222	1-126-288-11	ELECT	4.7uF	20%	16V
C223	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C224	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C240	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C241	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C301	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C302	1-124-589-11	ELECT	47uF	20%	16V
C303	1-124-589-11	ELECT	47uF	20%	16V
C304	1-126-157-11	ELECT	10uF	20%	16V
C305	1-126-157-11	ELECT	10uF	20%	16V
C306	1-128-054-11	ELECT	22uF	20%	10V
C307	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C409	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C410	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C413	1-126-579-61	ELECT	0.47uF	20%	50V
C501	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C502	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C503	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C504	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C505	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C506	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C507	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C508	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C509	1-125-559-11	CAP, DOUBLE LAYERS			0.047F
C510	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C511	1-126-157-11	ELECT	10uF	20%	16V
C512	1-126-157-11	ELECT	10uF	20%	16V
C513	1-126-157-11	ELECT	10uF	20%	16V
C514	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C515	1-126-157-11	ELECT	10uF	20%	16V
C516	1-126-564-00	ELECT	10uF	20%	16V
C517	1-124-230-00	ELECT	47uF	20%	10V
C518	1-126-936-11	ELECT	3300uF	20%	16V
C520	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C599	1-124-229-00	ELECT	33uF	20%	10V
C601	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C602	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C603	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C604	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C605	1-124-589-11	ELECT	47uF	20%	16V
C606	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C607	1-124-589-11	ELECT	47uF	20%	16V
C608	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C609	1-124-589-11	ELECT	47uF	20%	16V

Ref. No.	Part No.	Description			Remark
C614	1-136-169-00	FILM	0.22uF	5%	50V
C615	1-130-479-00	MYLAR	0.0047uF	5%	50V
C617	1-124-464-11	ELECT	0.22uF	20%	50V
C618	1-126-301-11	ELECT	1uF	20%	50V
C619	1-126-301-11	ELECT	1uF	20%	50V
C620	1-130-479-00	MYLAR	0.0047uF	5%	50V (5180RDS:G)
C620	1-136-153-00	FILM	0.01uF	5%	50V (5180RDS:AEP/5181RDS:AEP)
C621	1-163-157-00	FILM	0.022uF	5%	50V
C622	1-130-474-00	MYLAR	0.0018uF	5%	50V
C623	1-126-288-11	ELECT	4.7uF	20%	16V
C624	1-130-477-00	MYLAR	0.0033uF	5%	50V
C625	1-128-054-11	ELECT	22uF	20%	10V
C626	1-126-288-11	ELECT	4.7uF	20%	16V
C627	1-124-257-00	ELECT	2.2uF	20%	50V
C642	1-136-157-00	FILM	0.022uF	5%	50V
C643	1-163-157-00	FILM	0.022uF	5%	50V (5180RDS:G)
C645	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C646	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C670	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C671	1-163-237-00	CERAMIC CHIP	27PF	5%	50V
C672	1-163-237-00	CERAMIC CHIP	27PF	5%	50V
C673	1-163-021-00	CERAMIC CHIP	0.01uF	10%	50V
C674	1-126-559-00	ELECT	10uF	20%	10V
C675	1-163-127-11	CERAMIC CHIP	270PF	5%	50V
C676	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C701	1-126-301-11	ELECT	1uF	20%	50V
C702	1-126-301-11	ELECT	1uF	20%	50V
C703	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C704	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C705	1-163-009-00	CERAMIC CHIP	0.001uF	5%	50V
C706	1-163-009-00	CERAMIC CHIP	0.001uF	5%	50V
C707	1-124-360-00	ELECT	1000uF	20%	16V
C731	1-126-925-00	ELECT	470uF	20%	10V
C732	1-124-234-00	ELECT	22uF	20%	16V
C751	1-126-301-11	ELECT	1uF	20%	50V
C752	1-126-301-11	ELECT	1uF	20%	50V
C753	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C754	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C755	1-163-009-00	CERAMIC CHIP	0.001uF	5%	50V
C756	1-163-009-00	CERAMIC CHIP	0.001uF	5%	50V
C757	1-124-360-00	ELECT	1000uF	20%	16V
C901	1-126-154-11	ELECT	47uF	20%	6.3V
C902	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C903	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C904	1-128-057-11	ELECT	330uF	20%	6.3V
C914	1-163-106-00	CERAMIC CHIP	36PF	5%	50V
C950	1-124-589-11	ELECT	47uF	20%	16V
C951	1-126-157-11	ELECT	10uF	20%	16V
C952	1-126-157-11	ELECT	10uF	20%	16V

Ref. No.	Part No.	Description			Remark
C953	1-126-916-11	ELECT	1000uF	20%	6.3V
C954	1-124-360-00	ELECT	1000uF	20%	16V
C957	1-164-232-11	CERAMIC CHIP	0.01uF		50V

< JACK >

CNJ502	1-691-801-11	SOCKET, CONNECTOR 12P	
CNJ503	1-691-280-11	CONNECTOR	
CNJ901	1-566-531-11	CONNECTOR, FPC (ZIF) 15P	
CNJ902	1-566-531-11	CONNECTOR, FPC (ZIF) 15P	
* CNJ903	1-569-630-11	SOCKET, CONNECTOR 9P	

< CONNECTOR >

* CNP1	1-506-998-11	PIN, CONNECTOR (PC BOARD)	2P
* CNP2	1-506-985-11	PIN, CONNECTOR (PC BOARD)	3P
* CNP3	1-506-984-11	PIN, CONNECTOR (PC BOARD)	2P
* CNP4	1-506-985-11	PIN, CONNECTOR (PC BOARD)	3P
* CNP701	1-564-243-00	PIN, CONNECTOR 6P	

< DIODE >

D101	8-719-976-88	DIODE	DTZ3.9B
D102	8-719-109-75	DIODE	RD4.3ES-B2
D201	8-719-976-88	DIODE	DTZ3.9B
D202	8-719-109-75	DIODE	RD4.3ES-B2
D350	8-719-423-32	DIODE	MA8120M
D351	8-719-423-32	DIODE	MA8120M
D352	8-719-423-32	DIODE	MA8120M
D401	8-719-422-65	DIODE	MA8062M
D402	8-719-422-65	DIODE	MA8062M
D403	8-719-422-65	DIODE	MA8062M
D404	8-719-422-65	DIODE	MA8062M
D405	8-719-422-65	DIODE	MA8062M
D406	8-719-422-65	DIODE	MA8062M
D409	8-719-978-10	DIODE	DTZ3.9B
D410	8-719-978-10	DIODE	DTZ3.9B
D412	8-719-422-65	DIODE	MA8062M
D501	8-719-110-31	DIODE	RD12ES-B2
D501	8-719-112-80	DIODE	RD12ES
D502	8-719-110-13	DIODE	RD9.1ES-B2
D503	8-719-105-91	DIODE	RD5.6M-B2
D504	8-719-105-91	DIODE	RD5.6M-B2
D506	8-719-400-18	DIODE	MA152WK
D507	8-719-400-18	DIODE	MA152WK
D508	8-719-400-18	DIODE	MA152WK
D509	8-719-104-34	DIODE	1S2836
D510	8-719-120-78	DIODE	RD6.2ES-L3
D511	8-719-110-13	DIODE	RD9.1ES-B2
D512	8-719-109-89	DIODE	RD5.6ES-B2
D513	8-719-110-13	DIODE	RD9.1ES-B2
D514	8-719-945-59	DIODE	DSA3A4

MAIN

Ref. No.	Part No.	Description	Remark
D515	8-719-120-78	DIODE RD6.2ES-L3	
D516	8-719-110-46	DIODE RD16ES-B3	
D517	8-719-120-78	DIODE RD6.2ES-L3	
D518	8-719-400-18	DIODE MA152WK	
D601	8-719-911-19	DIODE 1SS119	
D602	8-719-911-19	DIODE 1SS119	
D603	8-719-911-19	DIODE 1SS119	
D604	8-719-911-19	DIODE 1SS119	
D605	8-719-104-34	DIODE 1S2836	
D606	8-719-800-76	DIODE 1SS226	
D731	8-719-911-19	DIODE 1SS119	
D901	8-719-109-85	DIODE RD5.1ES-B2	
D950	8-719-400-18	DIODE MA152WK	
D951	8-719-911-19	DIODE 1SS119	
D952	8-719-110-13	DIODE RD9.1ES-B2	
		< FRONTEND >	
FE601	1-193-066-21	TUNER UNIT (FM/AM) (5180RDS:AEP,G)	
FE601	1-693-044-21	TUNER UNIT (FM/MW/LW) (5181RDS:AEP)	
		< HIC >	
HIC601	1-808-515-11	IC NMX3S900	
		< IC >	
IC101	8-759-909-71	IC BA4558F	
IC102	8-759-909-71	IC BA4558F	
IC103	8-759-909-71	IC BA4558F	
IC104	8-759-909-71	IC BA4558F	
IC201	8-759-909-71	IC BA4558F	
IC202	8-759-909-71	IC BA4558F	
IC203	8-759-909-71	IC BA4558F	
IC204	8-759-909-71	IC BA4558F	
IC301	8-759-820-15	IC LC7537AN	
IC302	8-759-932-64	IC BU4052BF	
IC303	8-759-909-71	IC BA4558F	
IC304	8-759-048-67	IC BA3121F	
IC305	8-759-909-71	IC BA4558F	
IC501	8-759-981-65	IC LM2903M	
IC502	8-759-940-45	IC S-8054HN-CB	
IC503	8-759-421-13	IC AN8009M	
IC504	8-759-071-92	IC uPD75518GF-032-3B9	
IC601	8-759-066-24	IC uPD75116GF-F40-3BE	
IC602	8-759-513-44	IC X24C16SI	
IC603	8-759-823-81	IC LC7216M	
IC670	8-759-823-84	IC LC7071NM-TP-T1	
IC671	8-759-057-53	IC TDA7330D-013TR	
IC701	8-759-062-62	IC TDA1554	
IC901	8-759-060-19	IC SM5871AS	
IC950	8-759-982-31	IC RC78M05FA	
IC951	8-759-982-07	IC RC7808FA	
IC952	8-759-802-76	IC LB1645N	
		< JUMPER RESISTOR >	
JR301	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR501	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR502	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR504	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR505	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR601	1-216-295-00	METAL CHIP 0 5% 1/10W	(5180RDS)
JR602	1-216-295-00	METAL CHIP 0 5% 1/10W	(5180RDS)
JR605	1-216-295-00	METAL CHIP 0 5% 1/10W	(5180RDS)
JR606	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< COIL >	
L301	1-216-296-00	METAL CHIP 0 5% 1/8W	
L501	1-410-513-11	INDUCTOR 22uH	
L601	1-410-513-11	INDUCTOR 22uH	
L602	1-410-513-11	INDUCTOR 22uH	
L901	1-408-424-00	INDUCTOR 180uH	
L902	1-410-396-01	INDUCTOR 100K 5% 1/10W	
		< TRANSISTOR >	
Q101	8-729-920-21	TRANSISTOR DTC314TKH04	
Q102	8-729-920-21	TRANSISTOR DTC314TKH04	
Q201	8-729-920-21	TRANSISTOR DTC314TKH04	
Q202	8-729-920-21	TRANSISTOR DTC314TKH04	
Q301	8-729-901-05	TRANSISTOR DTA124EK	
Q302	8-729-901-00	TRANSISTOR DTC124EK	
Q402	8-729-920-22	TRANSISTOR DTC314TK	
Q403	8-729-920-22	TRANSISTOR DTC314TK	
Q404	8-729-920-22	TRANSISTOR DTC314TK	
Q405	8-729-920-22	TRANSISTOR DTC314TK	
Q501	8-729-901-05	TRANSISTOR DTA124EK	
Q502	8-729-901-00	TRANSISTOR DTC124EK	
Q503	8-729-922-65	TRANSISTOR 2SD1760F5-PQR	
Q504	8-729-922-65	TRANSISTOR 2SD1760F5-PQR	
Q505	8-729-901-00	TRANSISTOR DTC124EK	
Q507	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q508	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q509	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q510	8-729-216-22	TRANSISTOR 2SA1162	
Q511	8-729-216-22	TRANSISTOR 2SA1162	
Q514	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q515	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q516	8-729-920-86	TRANSISTOR 2SD1664	
Q517	8-729-105-29	TRANSISTOR 2SA1385	
Q518	8-729-901-00	TRANSISTOR DTC124EK	

Ref. No.	Part No.	Description		Remark
Q519	8-729-920-85	TRANSISTOR	2SD1664-QR	
Q520	8-729-920-85	TRANSISTOR	2SD1664-QR	
Q521	8-729-105-29	TRANSISTOR	2SA1385	
Q522	8-729-901-00	TRANSISTOR	DTC124EK	
Q523	8-729-922-65	TRANSISTOR	2SD1760F5-PQR	
Q524	8-729-920-74	TRANSISTOR	2SC2412K-QR	
Q525	8-729-920-74	TRANSISTOR	2SC2412K-QR	
Q526	8-729-901-01	TRANSISTOR	DTC144EK	
Q529	8-729-920-74	TRANSISTOR	2SC2412K-QR	
Q530	8-729-920-74	TRANSISTOR	2SC2412K-QR	
Q531	8-729-920-74	TRANSISTOR	2SC2412K-QR	
Q598	8-729-901-00	TRANSISTOR	DTC124EK	
Q601	8-729-904-57	TRANSISTOR	DTB114EK	
Q602	8-729-216-22	TRANSISTOR	2SA1162	
Q603	8-729-106-60	TRANSISTOR	2SB1115A	
Q605	8-729-809-71	TRANSISTOR	2SK536	
Q608	8-729-920-74	TRANSISTOR	2SC2412K-QR	
Q609	8-729-920-74	TRANSISTOR	2SC2412K-QR	
Q610	8-729-901-00	TRANSISTOR	DTC124EK	(5181RDS)
Q611	8-729-901-05	TRANSISTOR	DTA124EK	
Q620	8-729-901-00	TRANSISTOR	DTC124EK	
Q701	8-729-901-00	TRANSISTOR	DTC124EK	
Q702	8-729-901-00	TRANSISTOR	DTC124EK	
Q901	8-729-901-00	TRANSISTOR	DTC124EK	
Q950	8-729-105-29	TRANSISTOR	2SA1385	
Q951	8-729-920-22	TRANSISTOR	DTC314TK	
Q952	8-729-106-60	TRANSISTOR	2SB1115A	
Q953	8-729-105-29	TRANSISTOR	2SA1385	
Q954	8-729-920-22	TRANSISTOR	DTC314TK	
Q956	8-729-920-22	TRANSISTOR	DTC314TK	

< RESISTOR >

R102	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R105	1-216-073-00	METAL CHIP	10K	5%	1/10W
R106	1-216-083-00	METAL CHIP	27K	5%	1/10W
R107	1-216-073-00	METAL CHIP	10K	5%	1/10W
R108	1-216-121-00	METAL CHIP	1M	5%	1/10W
R109	1-216-083-00	METAL CHIP	27K	5%	1/10W
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R111	1-216-121-00	METAL CHIP	1M	5%	1/10W
R112	1-216-041-00	METAL CHIP	470	5%	1/10W
R113	1-216-077-00	METAL CHIP	15K	5%	1/10W
R114	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R115	1-216-121-00	METAL CHIP	1M	5%	1/10W
R116	1-216-121-00	METAL CHIP	1M	5%	1/10W
R119	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R120	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R121	1-216-090-00	METAL CHIP	51K	5%	1/10W
R122	1-216-090-00	METAL CHIP	51K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-089-00	METAL CHIP	47K	5%	1/10W
R125	1-216-073-00	METAL CHIP	10K	5%	1/10W
R126	1-216-089-00	METAL CHIP	47K	5%	1/10W
R127	1-216-085-00	METAL CHIP	33K	5%	1/10W (5180RDS:AEP/5181RDS:AEP)
R127	1-216-091-00	METAL GLAZE	56K	5%	1/10W (5180RDS:G)
R128	1-216-073-00	METAL CHIP	10K	5%	1/10W
R129	1-216-089-00	METAL CHIP	47K	5%	1/10W
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-073-00	METAL CHIP	10K	5%	1/10W
R133	1-216-089-00	METAL CHIP	47K	5%	1/10W
R140	1-216-025-00	METAL CHIP	100	5%	1/10W
R141	1-216-295-00	METAL CHIP	0	5%	1/10W
R143	1-216-295-00	METAL CHIP	0	5%	1/10W
R202	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R203	1-216-073-00	METAL CHIP	10K	5%	1/10W
R204	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R205	1-216-073-00	METAL CHIP	10K	5%	1/10W
R206	1-216-083-00	METAL CHIP	27K	5%	1/10W
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R208	1-216-121-00	METAL CHIP	1M	5%	1/10W
R209	1-216-083-00	METAL CHIP	27K	5%	1/10W
R210	1-216-073-00	METAL CHIP	10K	5%	1/10W
R211	1-216-121-00	METAL CHIP	1M	5%	1/10W
R212	1-216-041-00	METAL CHIP	470	5%	1/10W
R213	1-216-077-00	METAL CHIP	15K	5%	1/10W
R214	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R215	1-216-121-00	METAL CHIP	1M	5%	1/10W
R216	1-216-121-00	METAL CHIP	1M	5%	1/10W
R219	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R220	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R221	1-216-090-00	METAL CHIP	51K	5%	1/10W
R222	1-216-090-00	METAL CHIP	51K	5%	1/10W
R223	1-216-073-00	METAL CHIP	10K	5%	1/10W
R224	1-216-089-00	METAL CHIP	47K	5%	1/10W
R225	1-216-073-00	METAL CHIP	10K	5%	1/10W
R226	1-216-089-00	METAL CHIP	47K	5%	1/10W
R227	1-216-085-00	METAL CHIP	33K	5%	1/10W (5180RDS:AEP/5181RDS:AEP)
R227	1-216-091-00	METAL GLAZE	56K	5%	1/10W (5180RDS:G)
R228	1-216-073-00	METAL CHIP	10K	5%	1/10W
R229	1-216-089-00	METAL CHIP	47K	5%	1/10W
R231	1-216-073-00	METAL CHIP	10K	5%	1/10W
R232	1-216-073-00	METAL CHIP	10K	5%	1/10W
R233	1-216-089-00	METAL CHIP	47K	5%	1/10W

MAIN

Ref. No.	Part No.	Description			Remark
R240	1-216-025-00	METAL CHIP	100	5%	1/10W
R241	1-216-295-00	METAL CHIP	0	5%	1/10W
R243	1-216-295-00	METAL CHIP	0	5%	1/10W
R301	1-216-097-00	METAL CHIP	100K	5%	1/10W
R302	1-216-089-00	METAL CHIP	47K	5%	1/10W
R303	1-216-089-00	METAL CHIP	47K	5%	1/10W
R304	1-216-049-00	METAL CHIP	1K	5%	1/10W
R402	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R403	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R404	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R405	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R409	1-216-295-00	METAL CHIP	0	5%	1/10W
R501	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R502	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R504	1-216-025-00	METAL CHIP	100	5%	1/10W
R511	1-216-049-00	METAL CHIP	1K	5%	1/10W
R512	1-216-089-00	METAL CHIP	47K	5%	1/10W
R513	1-216-089-00	METAL CHIP	47K	5%	1/10W
R514	1-216-089-00	METAL CHIP	47K	5%	1/10W
R515	1-216-073-00	METAL CHIP	10K	5%	1/10W
R516	1-216-081-00	METAL CHIP	22K	5%	1/10W
R517	1-216-073-00	METAL CHIP	10K	5%	1/10W
R518	1-216-081-00	METAL CHIP	22K	5%	1/10W
R519	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R520	1-216-081-00	METAL CHIP	22K	5%	1/10W
R521	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R522	1-216-089-00	METAL CHIP	47K	5%	1/10W
R523	1-216-089-00	METAL CHIP	47K	5%	1/10W
R524	1-216-097-00	METAL CHIP	100K	5%	1/10W
R525	1-216-097-00	METAL CHIP	100K	5%	1/10W
R526	1-216-049-00	METAL CHIP	1K	5%	1/10W
R527	1-216-089-00	METAL CHIP	47K	5%	1/10W
R528	1-216-089-00	METAL CHIP	47K	5%	1/10W
R529	1-216-089-00	METAL CHIP	47K	5%	1/10W
R530	1-216-089-00	METAL CHIP	47K	5%	1/10W
R531	1-216-089-00	METAL CHIP	47K	5%	1/10W
R532	1-216-089-00	METAL CHIP	47K	5%	1/10W
R533	1-216-097-00	METAL CHIP	100K	5%	1/10W
R534	1-216-073-00	METAL CHIP	10K	5%	1/10W
R535	1-216-073-00	METAL CHIP	10K	5%	1/10W
R536	1-216-073-00	METAL CHIP	10K	5%	1/10W
R537	1-216-081-00	METAL CHIP	22K	5%	1/10W
R538	1-216-081-00	METAL CHIP	22K	5%	1/10W
R539	1-216-097-00	METAL CHIP	100K	5%	1/10W
R541	1-216-089-00	METAL CHIP	47K	5%	1/10W
R542	1-216-073-00	METAL CHIP	10K	5%	1/10W
R543	1-216-073-00	METAL CHIP	10K	5%	1/10W
R544	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R545	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W

Ref. No.	Part No.	Description			Remark
R546	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R547	1-216-073-00	METAL CHIP	10K	5%	1/10W
R548	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R549	1-216-073-00	METAL CHIP	10K	5%	1/10W
R550	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R551	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R552	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R553	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R554	1-216-097-00	METAL CHIP	100K	5%	1/10W
R555	1-216-097-00	METAL CHIP	100K	5%	1/10W
R557	1-216-105-00	METAL CHIP	220K	5%	1/10W
R558	1-216-089-00	METAL CHIP	47K	5%	1/10W
R559	1-216-073-00	METAL CHIP	10K	5%	1/10W
R560	1-216-089-00	METAL CHIP	47K	5%	1/10W
R561	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R562	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R563	1-216-077-00	METAL CHIP	15K	5%	1/10W
R567	1-216-097-00	METAL CHIP	100K	5%	1/10W
R568	1-216-097-00	METAL CHIP	100K	5%	1/10W
R570	1-216-097-00	METAL CHIP	100K	5%	1/10W
R571	1-216-097-00	METAL CHIP	100K	5%	1/10W
R572	1-216-097-00	METAL CHIP	100K	5%	1/10W
R573	1-216-097-00	METAL CHIP	100K	5%	1/10W
R574	1-216-097-00	METAL CHIP	100K	5%	1/10W
R575	1-216-097-00	METAL CHIP	100K	5%	1/10W
R595	1-216-097-00	METAL CHIP	100K	5%	1/10W
R596	1-216-097-00	METAL CHIP	100K	5%	1/10W
R601	1-216-089-00	METAL CHIP	47K	5%	1/10W
R602	1-216-097-00	METAL CHIP	100K	5%	1/10W
R603	1-216-097-00	METAL CHIP	100K	5%	1/10W
R604	1-216-097-00	METAL CHIP	100K	5%	1/10W
R605	1-216-097-00	METAL CHIP	100K	5%	1/10W
R606	1-216-097-00	METAL CHIP	100K	5%	1/10W
R607	1-216-097-00	METAL CHIP	100K	5%	1/10W
R608	1-216-073-00	METAL CHIP	10K	5%	1/10W
R610	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R611	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R612	1-216-073-00	METAL CHIP	10K	5%	1/10W
R613	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R614	1-216-073-00	METAL CHIP	10K	5%	1/10W
R616	1-216-073-00	METAL CHIP	10K	5%	1/10W
R617	1-216-073-00	METAL CHIP	10K	5%	1/10W
R618	1-216-073-00	METAL CHIP	10K	5%	1/10W
R619	1-216-049-00	METAL CHIP	1K	5%	1/10W
R620	1-216-049-00	METAL CHIP	1K	5%	1/10W
R623	1-216-049-00	METAL CHIP	1K	5%	1/10W
R624	1-216-041-00	METAL CHIP	470	5%	1/10W
R625	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R626	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R627	1-216-073-00	METAL CHIP	10K	5%	1/10W
R628	1-216-073-00	METAL CHIP	10K	5%	1/10W
R629	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R630	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R631	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R632	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R633	1-216-073-00	METAL CHIP	10K	5%	1/10W
R634	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R635	1-216-080-00	METAL CHIP	20K	5%	1/10W
R636	1-216-089-00	METAL CHIP	47K	5%	1/10W
R637	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R638	1-216-085-00	METAL CHIP	33K	5%	1/10W (5180RDS:AEP/5181RDS:AEP)
R638	1-216-089-00	METAL GLAZE	47K	5%	1/10W (5180RDS:G)
R639	1-216-085-00	METAL CHIP	33K	5%	1/10W (5180RDS:AEP/5181RDS:AEP)
R639	1-216-089-00	METAL GLAZE	47K	5%	1/10W (5180RDS:G)
R640	1-216-079-00	METAL CHIP	18K	5%	1/10W
R670	1-216-097-00	METAL CHIP	100K	5%	1/10W
R672	1-216-097-00	METAL CHIP	100K	5%	1/10W
R673	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R699	1-216-097-00	METAL CHIP	100K	5%	1/10W
R731	1-216-089-00	METAL CHIP	47K	5%	1/10W
R732	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R733	1-216-097-00	METAL CHIP	100K	5%	1/10W
R901	1-216-025-00	METAL CHIP	100	5%	1/10W
R902	1-216-037-00	METAL CHIP	330	5%	1/10W
R903	1-216-073-00	METAL CHIP	10K	5%	1/10W
R904	1-216-121-00	METAL CHIP	1M	5%	1/10W
R912	1-216-037-00	METAL CHIP	330	5%	1/10W
R913	1-216-037-00	METAL CHIP	330	5%	1/10W
R914	1-216-037-00	METAL CHIP	330	5%	1/10W
R950	1-216-073-00	METAL CHIP	10K	5%	1/10W
R951	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R952	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R953	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R954	1-216-073-00	METAL CHIP	10K	5%	1/10W
R955	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R956	1-216-045-00	METAL CHIP	680	5%	1/10W
R957	1-216-073-00	METAL CHIP	10K	5%	1/10W
R961	1-216-097-00	METAL CHIP	100K	5%	1/10W
R962	1-216-097-00	METAL CHIP	100K	5%	1/10W
R963	1-216-097-00	METAL CHIP	100K	5%	1/10W
R964	1-216-097-00	METAL CHIP	100K	5%	1/10W
R965	1-216-027-00	METAL CHIP	120	5%	1/10W
R966	1-216-001-00	METAL CHIP	10	5%	1/10W

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV601	1-238-716-11	RES, ADJ, METAL GLAZE 100K	
RV602	1-238-713-11	RES, ADJ, METAL GLAZE 10K	
RV603	1-238-204-11	RES, ADJ, METAL GLAZE 10K	
		< SWITCH >	
SW501	1-571-426-11	SWITCH, SLIDE	
SW701	1-572-186-21	SWITCH, SLIDE	
		< THERMISTOR >	
TH501	1-809-148-11	THERMISTOR, POSITIVE	
TH502	1-809-148-11	THERMISTOR, POSITIVE	
		< VIBRATOR >	
X501	1-567-776-21	VIBRATOR, CERAMIC (6.0MHz)	
X502	1-579-532-11	VIBRATOR, CRYSTAL (32.768MHz)	
X601	1-567-775-11	VIBRATOR, CERAMIC (4.19MHz)	
X602	1-567-848-11	VIBRATOR, CRYSTAL (7.2MHz)	
X603	1-567-250-11	OSCILLATOR, CERAMIC	
X670	1-567-819-31	VIBRATOR, CERAMIC (4.0MHz)	
X671	1-579-242-21	VIBRATOR, CRYSTAL (4.332MHz)	
X901	1-567-820-11	VIBRATOR, CRYSTAL	

****

* A-3279-978-A RF BOARD, COMPLETE

****

1-568-141-11 HOUSING, CONNECTOR 5P
1-568-142-11 HOUSING, CONNECTOR 13P
8-752-037-50 IC CXA1082BQ
8-752-057-45 IC CXA1082BQ

< CAPACITOR >

C1	1-135-166-21	TANTALUM CHIP	47uF	10%	10V
C2	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C3	1-126-599-11	ELECT	330uF	20%	6.3V
C4	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C5	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C6	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C7	1-163-078-11	CERAMIC CHIP	0.033uF	10%	25V
C8	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C9	1-126-593-11	ELECT CHIP	0.47uF	20%	50V
C10	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C11	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C12	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C13	1-126-593-11	ELECT CHIP	0.47uF	20%	50V
C14	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C15	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V

RF

Ref. No.	Part No.	Description			Remark
C16	1-126-590-11	ELECT CHIP	22uF	20%	4V
C17	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C18	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C19	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C20	1-126-592-11	ELECT CHIP	4.7uF	20%	16V
C21	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C22	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C23	1-126-591-11	ELECT CHIP	10uF	20%	6.3V
C24	1-126-594-11	ELECT CHIP	1uF	20%	50V
C25	1-126-594-11	ELECT CHIP	1uF	20%	50V
C26	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C27	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C29	1-126-590-11	ELECT CHIP	22uF	20%	4V
C30	1-126-590-11	ELECT CHIP	22uF	20%	4V
C31	1-126-590-11	ELECT CHIP	22uF	20%	4V
C34	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C35	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C36	1-126-592-11	ELECT CHIP	4.7uF	20%	16V
C37	1-126-591-11	ELECT CHIP	10uF	20%	6.3V
C38	1-162-638-11	CERAMIC CHIP	1uF		16V
C39	1-162-638-11	CERAMIC CHIP	1uF		16V
C40	1-126-176-11	ELECT	220uF	20%	10V
C99	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< JACK >			
CNJ13	1-566-531-11	CONNECTOR, FPC (ZIF) 15P			
CNJ14	1-566-531-11	CONNECTOR, FPC (ZIF) 15P			
		< CONNECTOR >			
* CNP10	1-506-990-11	PIN, CONNECTOR (PC BOARD) 8P			
		< IC >			
IC1	8-752-033-14	IC CXA1081Q			
IC2	8-752-037-50	IC CXA1082BQ			
IC3	8-752-341-93	IC CXD1167Q			
IC4	8-759-821-76	IC LA6533			
IC5	8-759-821-76	IC LA6533			
		< JUMPER RESISTOR >			
JR1	1-216-296-00	METAL CHIP	0	5%	1/8W
JR2	1-216-296-00	METAL CHIP	0	5%	1/8W
JR3	1-216-296-00	METAL CHIP	0	5%	1/8W
JR4	1-216-296-00	METAL CHIP	0	5%	1/8W
JR5	1-216-296-00	METAL CHIP	0	5%	1/8W
JR6	1-216-296-00	METAL CHIP	0	5%	1/8W
JR7	1-216-296-00	METAL CHIP	0	5%	1/8W
JR8	1-216-296-00	METAL CHIP	0	5%	1/8W
JR9	1-216-296-00	METAL CHIP	0	5%	1/8W
JR10	1-216-296-00	METAL CHIP	0	5%	1/8W

Ref. No.	Part No.	Description			Remark
JR11	1-216-296-00	METAL CHIP	0	5%	1/8W
JR12	1-216-296-00	METAL CHIP	0	5%	1/8W
JR13	1-216-296-00	METAL CHIP	0	5%	1/8W
JR14	1-216-296-00	METAL CHIP	0	5%	1/8W
JR15	1-216-296-00	METAL CHIP	0	5%	1/8W
JR16	1-216-296-00	METAL CHIP	0	5%	1/8W
JR17	1-216-296-00	METAL CHIP	0	5%	1/8W
JR18	1-216-296-00	METAL CHIP	0	5%	1/8W
JR19	1-216-296-00	METAL CHIP	0	5%	1/8W
JR20	1-216-296-00	METAL CHIP	0	5%	1/8W
JR21	1-216-296-00	METAL CHIP	0	5%	1/8W
JR22	1-216-296-00	METAL CHIP	0	5%	1/8W
JR23	1-216-296-00	METAL CHIP	0	5%	1/8W
JR24	1-216-296-00	METAL CHIP	0	5%	1/8W
JR25	1-216-296-00	METAL CHIP	0	5%	1/8W
JR26	1-216-296-00	METAL CHIP	0	5%	1/8W
JR27	1-216-296-00	METAL CHIP	0	5%	1/8W
JR28	1-216-296-00	METAL CHIP	0	5%	1/8W
JR29	1-216-296-00	METAL CHIP	0	5%	1/8W
JR30	1-216-296-00	METAL CHIP	0	5%	1/8W
JR31	1-216-296-00	METAL CHIP	0	5%	1/8W
JR32	1-216-296-00	METAL CHIP	0	5%	1/8W
JR33	1-216-296-00	METAL CHIP	0	5%	1/8W
JR34	1-216-296-00	METAL CHIP	0	5%	1/8W
JR51	1-216-295-00	METAL CHIP	0	5%	1/10W
JR52	1-216-295-00	METAL CHIP	0	5%	1/10W
JR53	1-216-295-00	METAL CHIP	0	5%	1/10W
JR54	1-216-295-00	METAL CHIP	0	5%	1/10W
JR55	1-216-295-00	METAL CHIP	0	5%	1/10W
JR56	1-216-295-00	METAL CHIP	0	5%	1/10W
JR57	1-216-295-00	METAL CHIP	0	5%	1/10W
JR58	1-216-295-00	METAL CHIP	0	5%	1/10W
JR59	1-216-295-00	METAL CHIP	0	5%	1/10W
JR60	1-216-295-00	METAL CHIP	0	5%	1/10W
JR61	1-216-295-00	METAL CHIP	0	5%	1/10W
JR62	1-216-295-00	METAL CHIP	0	5%	1/10W
JR63	1-216-295-00	METAL CHIP	0	5%	1/10W
JR64	1-216-295-00	METAL CHIP	0	5%	1/10W
JR65	1-216-295-00	METAL CHIP	0	5%	1/10W
		< COIL >			
L1	1-410-204-31	INDUCTOR CHIP 10uH			
L2	1-410-198-51	INDUCTOR CHIP 3.3uH			
		< TRANSISTOR >			
Q1	8-729-900-53	TRANSISTOR DTC114EK			
Q2	8-729-900-53	TRANSISTOR DTC114EK			
Q3	8-729-900-53	TRANSISTOR DTC114EK			
Q4	8-729-141-48	TRANSISTOR 2SB624-BV345			

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R1	1-216-150-00	METAL GLAZE	10	5%	1/8W
R2	1-216-081-00	METAL CHIP	22K	5%	1/10W
R3	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R4	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R5	1-216-081-00	METAL CHIP	22K	5%	1/10W
R6	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R7	1-216-097-00	METAL CHIP	100K	5%	1/10W
R8	1-216-073-00	METAL CHIP	10K	5%	1/10W
R9	1-216-073-00	METAL CHIP	10K	5%	1/10W
R10	1-216-073-00	METAL CHIP	10K	5%	1/10W
R11	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R12	1-216-105-00	METAL CHIP	220K	5%	1/10W
R13	1-216-121-00	METAL CHIP	1M	5%	1/10W
R14	1-216-105-00	METAL CHIP	220K	5%	1/10W
R15	1-216-085-00	METAL CHIP	33K	5%	1/10W
R16	1-216-085-00	METAL CHIP	33K	5%	1/10W
R17	1-216-085-00	METAL CHIP	33K	5%	1/10W
R18	1-216-081-00	METAL CHIP	22K	5%	1/10W
R19	1-216-081-00	METAL CHIP	22K	5%	1/10W
R20	1-216-085-00	METAL CHIP	33K	5%	1/10W
R21	1-216-085-00	METAL CHIP	33K	5%	1/10W
R22	1-216-097-00	METAL CHIP	100K	5%	1/10W
R23	1-216-097-00	METAL CHIP	100K	5%	1/10W
R24	1-216-103-00	METAL CHIP	180K	5%	1/10W
R25	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W
R26	1-216-085-00	METAL CHIP	33K	5%	1/10W
R27	1-216-085-00	METAL CHIP	33K	5%	1/10W
R28	1-216-081-00	METAL CHIP	22K	5%	1/10W
R29	1-216-081-00	METAL CHIP	22K	5%	1/10W
R30	1-216-085-00	METAL CHIP	33K	5%	1/10W
R31	1-216-097-00	METAL CHIP	100K	5%	1/10W
R32	1-216-076-00	METAL CHIP	13K	5%	1/10W
R33	1-216-076-00	METAL CHIP	13K	5%	1/10W
R34	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R35	1-216-114-00	METAL GLAZE	510K	5%	1/10W
R36	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R37	1-216-103-00	METAL CHIP	180K	5%	1/10W
R38	1-216-097-00	METAL CHIP	100K	5%	1/10W
R39	1-216-097-00	METAL CHIP	100K	5%	1/10W
R40	1-216-097-00	METAL CHIP	100K	5%	1/10W
R41	1-216-073-00	METAL CHIP	10K	5%	1/10W
R42	1-216-073-00	METAL CHIP	10K	5%	1/10W
R43	1-216-198-00	METAL CHIP	1K	5%	1/8W
R44	1-216-198-00	METAL CHIP	1K	5%	1/8W
R45	1-216-198-00	METAL CHIP	1K	5%	1/8W
R46	1-216-049-00	METAL CHIP	1K	5%	1/10W
R47	1-216-229-00	METAL GLAZE	20K	5%	1/8W
R48	1-216-220-00	METAL GLAZE	8.2K	5%	1/8W
R49	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R50	1-216-085-00	METAL CHIP	33K	5%	1/10W
R51	1-216-081-00	METAL CHIP	22K	5%	1/10W
R52	1-216-081-00	METAL CHIP	22K	5%	1/10W
R53	1-216-081-00	METAL CHIP	22K	5%	1/10W
R54	1-216-081-00	METAL CHIP	22K	5%	1/10W
R55	1-216-024-00	METAL GLAZE	91	5%	1/10W
		< VARIABLE RESISTOR >			
RV1	1-237-005-11	RES, ADJ, METAL GLAZE	22K		
RV2	1-238-206-11	RES, ADJ, METAL GLAZE	47K		
RV3	1-238-665-11	RES, ADJ, CERMET	22K		
RV4	1-238-665-11	RES, ADJ, CERMET	22K		
RV5	1-238-662-11	RES, ADJ, CERMET	2.2K		
		< THERMISTOR >			
TH1	1-808-656-11	THERMISTOR			
TH2	1-808-656-11	THERMISTOR			
**********					
*	1-634-330-11	SENSOR BOARD			
		**********			
		< JUMPER RESISTOR >			
JR90	1-216-296-00	METAL CHIP	0	5%	1/8W
JR91	1-216-296-00	METAL CHIP	0	5%	1/8W
JR92	1-216-296-00	METAL CHIP	0	5%	1/8W
		< TRANSISTOR >			
Q90	8-729-402-08	TRANSISTOR	PN147-LF		
Q91	8-729-402-08	TRANSISTOR	PN147-LF		
Q92	8-729-402-08	TRANSISTOR	PN147-LF		
**********					
		MISCELLANEOUS			
		**********			
11	1-690-485-11	CORD (WITH CONNECTOR)			
12	1-690-754-11	CORD (WITH CONNECTOR)	(RCA)		
12	1-690-754-21	CORD (WITH CONNECTOR)	(RCA)		
13	1-690-722-11	CORD (WITH CONNECTOR)	(SP)		
320	1-554-938-11	SWITCH, LEAF			
332	1-454-461-11	SOLENOID, PLUNGER			
⚠926	8-848-224-11	DEVICE, OPTICAL KSS-320B			
M901	A-4910-183-A	MOTOR ASSY, SL (SLED)			
M902	1-541-448-41	MOTOR (SPINDLE)			
M903	1-541-560-11	MOTOR, DC			
S901	1-570-771-11	SWITCH			
**********					

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	X-3364-646-1	CASE ASSY	
	1-690-720-11	CORD (WITH CONNECTOR)	
	3-323-209-01	BOLT (4-5), STUD	
	3-323-210-01	ADJUSTOR, STUD BOLT	
	3-323-219-01	FRAME, FITTING	
	3-349-410-01	BUSHING	
*	3-355-207-01	CARDBOARD (E)	
	3-374-200-01	SPRING (FITTING)	
	3-376-301-01	COLLAR	
*	3-376-450-01	CUSHION (UPPER)	
*	3-376-451-01	CUSHION (LOWER)	
	3-376-549-01	HOLDER (WMJ)	
	3-376-995-01	CUSHION (W)	
	3-754-588-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, DUTCH)	
	3-754-588-41	MANUAL, INSTRUCTION (5180RDS:AEP) (ENGLISH, SPANISH, CHINESE)	
	3-754-588-61	MANUAL, INSTRUCTION (5180RDS:AEP) (FINNISH, DANISH)	
	3-754-589-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, DUTCH)	
	3-754-589-41	MANUAL, INSTRUCTION (5180RDS:AEP) (SPANISH, SWEDISH, ITALIAN, PORTUGUESE)	
	3-754-589-61	MANUAL, INSTRUCTION (5180RDS:AEP) (FINNISH, DANISH)	

****

HARDWARE LIST

****

#1	7-621-255-25	SCREW +P 2X4
#2	7-621-770-67	SCREW +PTT 2.6X6 (S)
#3	7-621-770-XX	SCREW +PTT 2.6X8 (S)
#4	7-621-772-10	SCREW +B 2X4
#5	7-621-773-95	SCREW (+PTT 2.6X6), GROUND POINT
#6	7-624-101-01	STOP RING 1.2 (E TYPE)
#7	7-627-853-57	PRECISION SCREW +P 2X5 TYPE3
#8	7-682-550-09	SCREW +B 3X12
#9	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT
#10	7-627-553-37	SCREW, PRECISION +P 2X3
#11	7-621-772-08	SCREW +B 2X3
#12	7-624-104-04	STOP RING 2.0, TYPE -E
#13	7-627-552-18	SCREW, PRECISION +P 1.7X1.6
#14	7-627-553-28	SCREW, PRECISION +P 2X2.5
#15	7-627-850-57	SCREW, PRECISION +P 1.4X3.5
#16	7-627-553-17	SCREW, PRECISION +P 2X2.0 TYPE3
#17	7-627-554-18	SCREW, PRECISION +P 2X3.5 TYPE1
#18	7-627-852-17	SCREW, PRECISION +P 1.7X4.0
#19	7-624-106-04	STOP RING 3.0 (E TYPE)
#20	7-627-552-08	SCREW, PRECISION +P 1.7X2.5 TYPE1
#21	7-627-451-17	SCREW, PRECISION +K 1.4X2.5 TYPE1
#22	7-627-451-57	SCREW, PRECISION +K 1.4X4.0 TYPE1

****

• MOUNTING HARDWARE

501	X-3364-646-1	CASE ASSY
502	3-374-200-01	SPRING (FITTING)
503	3-323-219-01	FRAME, FITTING
504	X-3364-679-1	SCREW ASSY (B)
505	3-323-210-01	BOLT (4-5), STUD
506	3-323-210-01	ADJUSTOR, STUD BOLT
507	3-349-410-01	BUSHING
508	3-376-549-01	HOLDER (WMJ)
509	3-376-995-01	CUSHION (W)